A SHORT ACCOUNT OF THE Nature *and* Uſe OF MAPS.

AS ALSO

Some Short Diſcourſes of the Diviſion of the Earth into *Zones*, *Climes* and *Parallels*; with the Properties of the ſeveral Inhabitants thereof.

To which is Subjoined

A Catalogue of the Factories and Places now in Poſſeſſion of the *Engliſh*, *French*, *Dutch*, *Spaniſh*, *Portugueze* and *Danes*, both in the *Eaſt* and *Weſt Indies*. With ſeveral Tables very uſeful in *Geography* and *Navigation*.

By *William Alingham*, Teacher of the Mathematicks in *Channel-Row*, *Weſtminſter*.

R

LONDON: Printed by *R. Janeway*, for *Benj. Barke*
at the *White-Hart* in *Weſtminſter-Hall*. 1703.

BRITISH MUSEUM

To the Honourable

William Duncomb, Eſq;

OF

Battleſdown, *in the County of*
BEDFORD.

SIR,

I Am heartily glad of this Opportunity to make my Publick Acknowledgment of the Favours I have received from you.

And therefore humbly beg Your Protection of this Small Treatiſe, which I do here lay at your Honour's Feet, to ſhow the Zeal I have for Your Service.

I have nothing more to add, but that Health and Happineſs may attend You and Your Honourable Family, is the real Wiſh, and hearty Deſire, of,

Honoured Sir,

Your Obedient,

Humble Servant,

2 AU 65

W. Alingham.

TO THE READER.

Reader,

T*HE deſign of the Enſuing Treatiſe is a ſhort Account of the Nature and Uſe of Maps, a Knowledge of great Advantage to ſeveral Sorts of People, and the principal Branch of that Noble Science of* Geography, *which informs you in the Nature, Property and Magnitude, not only of the whole* Earth, *but alſo of each Diſtinct and Particular Part thereof.*

For by this Science the Divine, Merchant, Soldier *and* Traveller, *may (without danger of thoſe apparent Hazards they are like to fall under) take a particular View of thoſe vaſt and pleaſant Countries they have Occaſion to viſit or mention in their ſeveral Vocations; ſuch, with many other, are the Advantages of this Excellent Science.*

But leaving this, I ſhall give a ſhort Account of the Enſuing Treatiſe, which, as the Title Informs you, is the Nature and Uſe of Maps, in *which I have Inſerted ſuch Diſcourſes as is requiſite to give you a clear underſtanding of the Nature and Reaſon of their Projection; next I proceed to their Uſe, in knowing how to find out any Place by the moſt Practical and Common Methods yet Known, and alſo how to Meaſure the Diſtance betwixt two Places, when found in any Map; with other Pleaſant Accounts of the Diſtinction and Diviſion of the Earth into* Zones, Climates, *and* Parallels.

Laſtly, I have added a Catalogue of the Places and Factories now in Poſſeſſion of the Engliſh, French, Dutch, Spaniards, Portugueze *and* Danes, *both in the* Eaſt *and* Weſt Indies, *as they are Collected by an* Ingenious Author; *with ſeveral other uſeful and neceſſary Tables, not only in* Geography, *but in* Navigation; *all which is Humbly Preſented to thoſe whoſe Genius Leads them to the Conſideration of ſuch Excellent Inquiries, by*

2 AU 65

W. Alingham.

THE

THE

CONTENTS.

OF the Earth, Section 1.
Arguments for proving the Spherick of Globular Form of the Earth, Sect. 2.
Of ſome General Properties of the Earth, Sect. 3.
Of the Circles of the Globe, Sect. 4.
Of the Meaſure of the Earth, Sect. 5.
Definitions of Names of Land and Water, Sect. 6.
Of the Different Poſitions of the Globe, Sect. 7.
Of Maps in General, Sect. 8.
Of Making and Projecting Circular Maps, Sect. 9.
How to lay down Places on Circular Maps, Sect. 10.
Of Making Right-lined Maps, Sect. 11.
How to lay down Places or Right-lined Maps, Sect. 12.
General Notes for Uſing of Maps, Sect. 13.
How to find out Places on any Sort of Maps, Sect. 14.
Of Meaſuring Diſtances on Circular Maps, Sect. 15.
How to Meaſure Diſtances on Right-lined Maps, Sect. 16.
Of the Zones, Sect. 17.
Of the Climates, Sect. 18.
Of the Properties of the ſeveral Inhabitants of the Earth, Sect. 19.
Of the Perieci, Antieci *and* Antipodes, Sect. 20.
Of the Properties of our Engliſh *Miles to ſeveral other Country Miles,* Sect. 21.
Of the Likeneſs of the Shape of ſeveral Countries to other things, Sect. 22.
Of Eclipſes, and their Uſe in Geography, Sect. 23.

The CONTENTS.

A Catalogue of ſome of the chiefeſt Places in the World, with their Latitudes and Longitudes, from Teneriff, *one of the* Canary *Iſlands*, Sect. 24.

Of what Concern the Knowledge and Uſe of Maps is, Sect. 25.

A Table containing the Longitude, Latitude, Declination, Right Aſcenſion, of Twenty of the Principal Fixt Stars for the Year 1700. page 73

A Table ſhewing from the Firſt Day of January, *to every Tenth Day afterwards, the Sun's Place, alſo his Declination, Right Aſcenſion, Oblique Aſcenſion, Amplitude of Riſing and Setting, Time of Riſing and Setting, and Time of Twilights beginning and ending*, p. 74.

A Table ſhewing from the firſt Day of January, *to every Tenth Day afterwards, the Sun's Place; alſo his Right Aſcenſion, Oblique Aſcenſion Amplitude of Riſing and Setting, and Time of Twilights beginning and ending*, p. 75.

A Catalogue of the Latitudes and Longitudes from London *of the principal Iſlands in the whole World*, p. 76.

A Table of Angles which every Rhomb (or Point of the Compaſs) maketh with the Meridian, p. 85.

2 AU 65

SECT.

SECT. I.

OF THE EARTH.

THE *Earth* was in the Beginning, by Command of the Moſt High, created out of a *Chaos*, or confuſed Heap, which before had no Form, and was made a Habitation for Man to Dwell upon, that for a Time he might Contemplate upon the inferiour Works of his Creator. The Deſcription of this Earth is termed *Geography*, and the Figure that the Earth and Water do together Conſtitute, is by many Obſervations and Experiments prov'd to be round, or in form of a Globe, hanging by nothing in the Air, and by the moſt Accurate Obſervations its Circumference is found near 24971 *Engliſh* Miles, and conſequently its Diameter 7291 ſuch Miles, as has been found by the late Experiments of ſeveral Nations. The greateſt part of this Globe is covered with Water for ought we yet know, which at the Creation by the Almighty Decree, was gathered into one Place call'd the *Sea:* This Ball or Globe of Earth and Water, is covered with a thin ſubtile Matter call'd *Air*, by which it is rendred Habitable: In the Center of this Globe is an Attractive Power, by Virtue whereof all heavy Bodies though looſed from it will again return and cling to it, by which Faculty 'tis defended from Diſſolution in not permitting the leaſt part thereof to be ſeparated from it.

This Globe by its (or the Sun's) Two-fold Motion, enjoys the grateful Viciſſitudes of Day and Night, Winter and Summer; the firſt by turning upon its own Axis once in 24 Hours, and the ſecond by having the ſaid Axis carried about the Sun in the ſpace of one Year, by ſome unknown Principle of Nature, during the Time of its other Revolution; and this Axis not being perpendicular to the Plan in which the ſaid Annual Motion is performed, cauſeth one Hemiſphere to have more of the Sun's Light for one half Year, and the other Hemiſphere for the other.

2 AU 65

SECT. II.

Arguments for proving the Spherick, or Globular Form of the Earth.

A Globe or Sphere, is a perfect round ſolid Body, contained under one Surface, in the midſt of which is a Point call'd the *Center*, from whence all Lines drawn to the outſide are equal; theſe Lines are termed *Semidiameters.*

Of this Form and Figure is the whole Earth and Sea taken together as we have reaſon to conclude from ſeveral undoubted Obſervations and Experiments, the Principal of which follows.

Firſt, Eclipſes of the Moon which are cauſed by the Earth's coming betwixt the Sun and Her; for the Moon having no Light but what ſhe receives from the Sun, is hindred of it by the Opaque Body of the Earth, who interpoſing betwixt the Sun and Moon caſts her Shadow upon the Moon, which to us appears Circular thereon; and therefore according to *Optick* Principles, the Earth from whence it proceedsis a Spherick or Globular Body.

Secondly, Eclipſes of the Sun, which are cauſed by the Moon's paſſing betwixt him and thoſe Places where he appears Eclipſed;

For unleſs the Earth were Globular as Aſtronomers have aſſumed it, the Time when, and Place where Solar Eclipſes ſhould happen, could not be determin'd; but ſeeing both Time and Place is nicely limited, their Suppoſition of the Earth's roundneſs muſt needs be true.

Thirdly, becauſe all the *Phænomena* do Riſe, Culminate, and Set, ſooner to the *Eaſtern* than to *Weſtern* Inhabitants, as has been obſerved by thoſe who have carried correct Time-keepers to Sea, and this Proportionally according to the roundneſs of the Earth.

Fourthly, Viewing from the Shoar a Ship a good Diſtance from you, at firſt you ſhall only perceive her Top-ſails, but as ſhe Approaches nearer, you ſhall ſee her Lower-ſails, and at laſt her Hull, which I think is an Evident Proof of the Earth's Sphericity; for did not the Globoſity of the Water interpoſe betwixt our Sight and the Ship, we might ſooner ſee her Hull than her Top-ſails.

Fifthly, Our Modern Navigators in their Voyages, eſpecially thoſe that have been made round the World by *Drake* and *Cavendiſh*, make it very apparent; for ſailing *Eaſtward*, they have, without turning back arrived to the Place from whence they firſt ſet Sail, only they came ſhort home by one Day and Night, *that is*, they were Abſent 24 Hours more by their own Reckoning, than by the Account of them kept at Home, which thing further Confirms the Earth's Sphericity.

Sixthly, It is found by daily Practice, that the Degrees of every Parallel upon Earth, have the ſame Proportion to the Degrees of the Equinoctial, as the Degrees of the like Parallel of an Artificial Globe, has to a Degree of the Equinoctial thereon deſcribed.

Seventhly and *Laſtly*, Common Experience ſhews us, That ſailing or going towards the *North*, we raiſe the *North-Pole*, and *Northern Stars*, *And on the contrary* do depreſs the *South-Pole* and *Southern Stars*, the *North* Elevation encreaſing equally with the *South* Depreſſion, and both Proportional according to the Diſtance ſailed, the like happens in ſailing *Southwards*; beſides the *Oblique Aſcention*, *Deſcention*, *Amplitude* of riſing and ſetting of the Sun, Moon and Stars, would be the ſame in all Places, were not the Earth Globular.

And it may further be Obſervable, that was not the Earth Globular, but a Round-flat as ſome have fooliſhly imagined, then theſe Abſurdities would follow, *viz.*

The Elevation of the Pole, and Height of the Stars, would be the ſame in all Places.

The ſame Appearance of the Heavens would be to all Inhabitants.

The Sun, Moon and Stars would Riſe, Culminate, and Set, to all Places at the ſame time.

Eclipſes would appear to all People at one and the ſame Inſtant.

The Days and Nights would be of the ſame length to all Parts, neither would there be Day in one Place, when there is Night in another.

Shadows would be alike in all Places, *that is*, all of them would be one way, neither would one Country be Hotter or Colder than another.

But though we thus endeavour to Prove this Body of Earth and Water to be round, yet it muſt not be ſtrictly taken, as if there were no Inequalities of its Surface: For the *Mountains*, *Hills* and *Valleys*, which are ſo common in moſt parts of it, cauſe ſome Irregularities and Cragginеſs in the Surface, yet becauſe the greatneſs of the Inequalities have ſcarce any ſenſible Proportion to the whole Earth, the Height of the higheſt Mountain being not $\frac{1}{6000}$ part of its Diameter, which is inconſiderable; and therefore notwithſtanding theſe ſmall Irregularities, we may affirm the Earth and Water to be round, or in form of a Globe or Sphere.

SECT.

SECT. III.

Of ſome General Properties of the Earth.

FRom what before has been ſaid, 'tis evident that when we Name the Earth, it is not the Earth only (that is, without the Sea) but under one Name both are jointly compriſed, as they are now mingled one with another.

This Globe of Earth and Water has one common Center as appears from this Reaſon. Take a Lump of Earth and ſome Water, and let them both fall together from ſome high Place; we ſee in the deſcent they do not fly one, one way, and the other another, but keep ſtill together in one ſtrait Line, which could not poſſibly be, had the Earth and Water different Centers.

Now toward this common Center do all Bodies tend, and would (if not obſtructed by the Surface of the Earth) deſcend till they came to the Center where they would Reſt: The Cauſe of which is by an Attractive Power placed therein, which Principle, as I ſaid before, is that which hath kept the Earth from Diſſolution. For had all the Sand in the Deſerts and Duſt elſewhere, which the Wind or other Force hath raiſed, been entirely ſeparated from this Globe of Earth, it migh eaſily be calculated to how ſmall a Body it would have been reduced long ſince the Creation.

But Divine Providence has prevented ſuch effect by placing this Attractive Power in the Center thereof, by which Means 'tis defended from Diſſolution in not permitting the leaſt Part or Particle to be ſeparated from it: For though by the Force of the Wind ſome part of the Earth may be rais'd to a conſiderable Hight, yet when that Force ceaſeth, it all falls to the Surface of the Earth again.

From this Sphericity or Globoſity of the Earth, and its having this Attractive Power in its Center, theſe Conſequences will follow.

Firſt, That two Plumb Lines let fall ſome ſmall Diſtance one from another are not Parallel, becauſe they would both meet at the Center, which is contrary to the Nature of Parallel Lines.

Secondly, If a great Army of Men ſhould be drawn together on ſome great Plain, and there martial'd together in Battel-array; I ſay of all theſe Men only one of them would ſtand upright; as is manifeſt from *Fig.* 1. where of all the Lines drawn from the Center to the Plain, only one of them as C D is Perpendicular to the Plain.

Thirdly, That a Bowl exactly round cannot reſt on any Plain parallel to the Horizon, but upon one certain Point: For let A B C denote the Surface of the Earth, and D its Center, then let any Plain, ſuppoſe F G be a Tangent to the Earth's Surface. Now becauſe 'tis the Nature of all heavy Bodies not to reſt when they may deſcend, and the Ball at G having nothing to hinder its nigher approach to the Center, muſt (by conſequence) continually deſcend till it comes to the Point B where it will reſt, becauſe it is then nigher the Center D. *Fig.* 2.

Fourthly, That the Maſt of a Ship deſcribes a greater Space than the *Hull*, and the Head of a Traveller more than his Feet, and this difference in Travelling round the World, is ſo much as the Circumference of the outer Circle exceeds that of the Inner, which outer Circle has its Diameter greater than the Diameter of the Earth by twice the heighth of the Traveller.

Fifthly, That if a half-Tub be fill'd Brim full of Water, and from the Surface of the Earth be mov'd directly upward, and parallel to the Horizon, the *Tub* will continually flow over, yet be always full.

Whence 'tis evident that a Veſſel will hold leſs at the top of a Hill than at the bottom, and more in a Valley than on Plain Ground.

SECT. IV.

Of the Circles of the Globe.

THE *Earth* being in Form of a Globe, as before deſcribed, *Aſtronomers* have contriv'd an Artificial one in repreſentation thereof, on which they have Pictured both Sea and Land in all their parts, and according to their true Situation ſo far as is known.

Upon this Globe (for the more ample Diviſion and Deſcription of Places, both on it ſelf as well as upon Maps) they have deſcribed ſeveral Lines and Circles, which they ſuppoſe to be drawn upon the Surface of this *Earthly Globe*, the Principal of which (uſeful for the preſent purpoſe) are the *Axis* of the World, the *Horizon*, the *Meridian*, the *Equinoctial*, the two *Tropicks*, two *Polars*, and Parallels of Latitude.

The *Axis* of the World is a ſtrait Line imagined to paſs through the Center of the Earth, reaching to the Heavens, being the Line about which the Diurnal Motion of the Heavens or Earth is performed from Eaſt to Weſt. The Extremities of this *Axis* are two fixed Points, which we call the Poles of the World; one of theſe is termed the *Arctick*, or North-Pole, the other the *Antarctick*, or South-Pole, as AX *Fig.* 3. 4.

The *Horizon* is a great Circle of the Globe, it divides the viſible part of Heaven from the inviſible, and (when at Sea, or on Plain Ground) is the Circle that ſeemingly parts Heaven and Earth, it bounds the Riſing and Setting of the Sun, Moon and Stars: In *Geography* we divide the Horizon into *Points*, to ſhew the bearing of places from each other, as ÆQ. *Fig.*1. AX. *Fig.*2. HO. *Fig.*3.

The *Meridian* is another great Circle of the Globe, paſſing through both Poles of the World, and cuts the *Horizon* at right Angles in the North and South Points thereof. It divides the Viſible *Hemiſphere* into the Eaſtern and Weſtern parts; it determines the Noon and Midnight of all Places: For when the Sun is upon this Circle in the Day it is Noon; when upon it in the Night it is Midnight. In *Geography* 'tis the *Land-mark* from whence we reckon the Longitude of Places. Where not only the outermoſt Circle A Æ X Q but alſo the Circles A m X are Meridians. *Fig*.3.4.5.

The *Equinoctial* is alſo a great Circle of the Globe Environing the Earth in the Middle betwixt both Poles, and ſo cuts it into two Hemiſpheres, that next the North Pole is termed the Northern Hemiſphere, the other next the South-Pole the Southern Hemiſphere. This Circle is called by *Geographers* the *Equator*, or *Girdle of the World*; it being from this Circle they always count the *Latitude*. All places that lie upon this Circle have Day and Night always Equal, as ÆQ. *Fig*.3.4.5.

The *Tropicks* are two ſmall Circles dividing the Globe unequally, being diſtant on each ſide the Equator 21. Degrees; that on the North-ſide is called the *Tropick* of *Cancer*; the other on the South-ſide is called the *Tropick* of *Capricorn*. In *Geography* theſe Circles limit the *Torrid Zone*, and are the Bounds of one ſide of the *Temperate Zones*, as CR.PN. *Fig*.3.4.5.

The *Polars* are two ſmall Circles of the Globe diſtant from each Pole as far as the Tropicks are from the Equator: In *Geography* their uſe is to Bound the *Frigid* or *Frozen Zones*, as alſo the other ſide of the *Temperate Zones*, as *ar. kr. Fig.* 3. 4. 5.

Parallels of *Latitude* are ſmall Circles running round about the Globe Parallel to the Equator ſuch are the two *Tropicks*, and the two *Polars* before deſcribed.

The *Zenith* is a Point directly over our Heads.

The *Nadir* is a Point directly under our Feet.

Latitude is the neareſt Diſtance of a Place from the *Equator*; or the height of the Pole above the Horizon of any Place; for if the Place be on the North-ſide of the Equator the Place is ſaid to have *North Latitude*, and conſequently the North-Pole is Elevated above the Horizon. If the Place be on the South-ſide of the Equator, the place is ſaid to have *South-Latitude*, and conſequently the South-Pole is Elevated above the Horizon.

Longitude of a place is the diſtance of ſuch place counted on the Equator, from ſome Meridian which paſſes through the place you reckon or count your Longitude from; which Meridian is as it were the Land-mark of the whole Sphere, being the Bounds from whence the Longitude of any particular place is ac- unted quite round the Globe.

Now this Meridian from whence we be- to Reckon the *Longitude*, has been differently aſſign'd by ſeveral *Nations*. For the *Arabian* and *Nubian Geographers* plac'd it at the utmoſt Extremity of the Weſtern Shore.

Ortelius in his Sheet-Map of *Europe*, makes *London* to lie in 28 Degrees, but in his Sheet-Map of *France* and *Belgia*, it lies but in 21 Degrees of *Longitude*; ſo that where he begins his Longitude, is not exactly known.

The *Spaniards*, ſince the *Weſt-India* Conqueſt begin at *Toledo*, and contrary to all other Accounts, reckon their Longitude from *Eaſt* to *Weſt*.

Blaew, the *Dutch* Geographer, begins his at *Teneriff*, the moſt Noted of the *Canary*-Iſlands, though on his large Map of the World, he makes it paſs through *Tercera*, one of the *Azores*.

Sanſoon, the *French* Geographer, begins his at *Ferro*, one of the *Canaries*: Our late Geographers, eſpecially the *Engliſh*, place it in the *Azores*, ſome beginning at *Tercera*, others at *Corvo*, a third at *Gratioſa*; though upon our new ſort of Globes, and ſome late Maps, it is made to paſs through the *Weſtermoſt* part of St. *Michael*'s.

SECT. V.

Of the Meaſure of the Globe.

THE Earth and Water being of this Form, we ſhall in the next place enquire into its Extent, for the effecting of which, ſeveral

Eſſays have been made, to find either its Circumference or Diameter; for when one of them is gotten, the other is eaſily known, and by having them both, its Surface and Solidity may be eaſily Diſcovered.

Now as their Concluſions has been different, ſo has the ways by which they have endeavoured to attain them. *Eratoſthenes*'s way was by the Sun-beams, and Shade of a Stile, *vid. Deſchale*'s *uſe of* 29. 1 *Euc. Maurolycus* Abbot of *Meſſuva* his way was by finding the Quantity of the Angle made by two Lines drawn from the Surface of the Earth, to the top of any high Hill, *vid. Deſchale*'s uſe of the *6. 2. Euc.* A third way was by Eclipſes, which is very uncertain, for a ſmall miſtake in the times of Obſervation at one or both of the places, will cauſe a very great and ſenſible Error, in the diſtance of the ſaid places.

A Fourth and ſureſt way which has been try'd by moſt Nations, is that of meaſuring *North* and *South* under one Meridian, ſome good large Diſtance, *viz.* one or two Hundred Miles; for in the Obſervation of ſmall Diſtances, there can be no certain Concluſion. The method of doing this, is either with an Inſtrument and Chain, or elſe with a *Perambulator* or meaſuring Wheel, which after 'tis actually taken, muſt with great care be plotted down upon Paper, but not without allowing for the Variation of the Needle, and all notable Aſcents and Deſcents with other turnings and windings, that will of neceſſity be met with in the way, and ſo by this means we ſhall come to know how many Miles on the Earth will anſwer to a Degree in the Heavens, provided an exact Obſervation by a large Quadrant, or other Inſtrument, be made to find the Latitude of the place we begin to meaſure from, and the Latitude of the place we meaſure to.

According to this Method, did Mr. *Richard Norwood*, a good Mathematician, and an able Seaman, in the Year 1635, make an Experiment in meaſuring the Diſtance betwixt *London* and *York*, by which he found one Degree upon Earth, that is, the $\frac{1}{360}$ part of the Circumference of the Earth to contain $69\frac{4}{11}$ *Engliſh* Miles (each *Engliſh* Mile containing 5280 Feet) and conſequently the whole Circumference of the Earth 24971 *Engliſh* Miles, and its Diameter 7291 of the ſame. From theſe Dimenſions will the *Area* of the Surface of the whole Globe of Earth and Water be found to be 197795291 Square *Engliſh* Miles, and its ſolid Content 261089784120 Cubical, *Engliſh* Miles, which Account doth likewiſe nearly agree with the *Dutch* and *French*.

SECT.

SECT. VI.

Definitions of Names of the Land and Water.

THE *Land* has in it the following Diſtinctions or Names, *viz.*

Continent, is a great part of the Habitable Earth that lies together, not being divided by the Sea, ſuch is the whole Continent of *Europe*, *Aſia* and *Africa*, as likewiſe that of *America*.

Iſland, is a piece of Land Environ'd quite round with Water, as *Great Britain*, *Ireland*, *&c.*

Iſtmus, is that little Neck of Land that joyns a piece of Land to the Continent, ſuch is that of *Sues*, which ties *Aſia* to *Africa*, and that of *Corinth* which ties *Morea* to *Greece*, *&*c.

Peninſula, is almoſt an Iſland, being that which ties an Iſtmus to the Continent, ſuch is *Africa*, *Morea*, &c.

A *Promontory* or *Cape* is a High Land bending or running out into the Sea, ſuch is the Cape of St. *Vincent*, Cape of *Good Hope*, *&c.*

Mountain is a part of the Earth higher than the reſt, ſuch is the *Alps*, the *Cheviat Hills*, *&c.*

The Water has alſo ſeveral Diſtinctions and Diviſions, as the *Ocean* or *Main-Sea*, is that vaſt Body of Water that Environs or Surrounds the Continent.

Gulph, is an Arm of the Ocean, running in between Lands; ſuch is the Gulph of *Perſia*, *Arabia*, &c.

Straight, is a narrow Channel that joins one Sea to another, or Gulph to the Ocean; ſuch is that of *Gibralter* which joins the Mediterranean to the Weſtern Ocean, *&c.*

Lake, is that which continually keeps ſtanding Water in it, ſuch is that of *Nicaragua* in *America*, *Zair* in *Africa*, &c.

River, is a freſh Running-Water that loſes its Streams in the Sea, ſuch is the *Thames*, *Severn*, &c.

Port or *Harbour* is a ſmall Portion of the Sea of ſuch Depth, and ſo hemm'd in by the Land, that Ships may there Ride in Safety.

Bay, is likewiſe an Arm of the Ocean, but the Entrance thereof is much wider than that of a Gulph.

Shelf, is either a Heap of Sand or elſe a Rock that lyes near the Surface of the Wa-

Archipelago, is a Sea where are many Iſlands.

SECT. VII.

Of the different Poſitions of the Globe.

OF the Globe there are but three General Poſitions, *viz. Right*, *Parallel*, and *Oblique*; the two firſt of which are Particular to but few Inhabitants, the third more Univerſal.

The *Right Poſition*, is when the *Equator* and all its *Parallels* (conſequently the *Tropicks* and *Polars*) cut the *Horizon* at right Angles, the *Zenith-Point* being in the Equator, and neither Pole having any Elevation or Depreſſion, the *Axis* of the World being Coincident with the Plan of the Horizon; The People that have the Sphere or Globe in this Poſition are ſuch as Live directly under the Equator. *See Fig.* 3.

The *Parallel Poſition* is when the Equator is Coincident with the Horizon, and conſequently all its *Parallels*, Parallel there to, the Poles of the World being in the Zenith and Nadir Points: The People that have the Sphere or Globe in this Poſition are ſuch as Live juſt under either Pole. *See Fig.* 4.

The *Oblique Poſition* is the moſt Univerſal and Uſual, it having Relation to all People between the Equinoctial and either Pole; In this Poſition the Equator cuts the Horizon, and conſequently all its Parallels at Oblique An-

Angles; and accordingly as this Obliquity is more or leſs, ſo are the People ſaid to be Situate in a greater or leſſer Latitude. *See Fig.* 5.

The People Living under any one of theſe Poſitions Enjoy ſeveral Advantages and Diſadvantages, of which I ſhall Treat more Particularly and Diſtinctly under this Title, *Of the Properties of the ſeveral Inhabitants of the Earth*, towards the end of the Book.

SECT. VIII.

Of Maps in General.

MAps are only the Pictures or Repreſentations of the Globe, or ſome part of it upon the Plan, *That is*, they are a *Perſpective* Draught either of the whole or ſome particular Place. And is an Invention of ſuch vaſt Uſe to Mankind, that there is ſcarce any thing for which the World is more indebted to the Studies of Ingenious Men, than this of deſcribing Maps, for by the Aſſiſtance of thoſe, we may at Home with Pleaſure take a Survey of the ſeveral *Empires* and *Kingdoms* of the World, and know their *Bearing*, *Diſtance*, and *Extent*: As alſo of their Particular *Provinces*, *Cities*, *Towns*, and other Remarkable Places.

To do this Exactly was not preſently effected, nor was it one Generation that could bring it to any Tolerable Perfection; But ſince the great Improvement of Navigation, and Contrivance of ſeveral Ingenious Men, they have found out ſuch, Methods, by which Maps may be truly Corrected and Delineated.

Of theſe Maps, (as I ſaid before) ſome are of the whole World, and therefore Circular; others but of Particular Parts, and ſo may be right Lines, for either of which there are different Methods uſed to Project them.

SECT. IX.

Of making and projecting Circular Maps.

SUppoſe the whole Globe of Earth and Water *Tranſparent*, and the Eye placed ſome where in the *Equator*, and that at right Angles to the Line, paſſing from the Eye to the oppoſite Part of the Earth, a Plan be conceived to be placed, cutting the Earth into two equal Parts, *that is*, paſſing through the *Earth's Center*: Then, I ſay, if from the Eye Rays be imagined to paſs through the ſaid Plan to every Phiſical Point in the Obverſe Hemiſphere of the Earth; Theſe Lines ſhall Project Points upon the ſaid Plan, which if jioned will give you the true Picture of the

Places in one half of the Earth's Surface; and becauſe but one half of the Globe is to be ſeen at one Time, therefore if you deſire a Repreſentation of the whole Terraqueous Globe, it muſt be done in two Hemiſpheres.

According to this Repreſentation there are Geometrical Rules laid down for projecting and delineating the Circles and Lines by which the Earth and Water may be laid down as they thus appear to the Eye, (whether upon the Plan of the Meridian or Equator) which Rules I ſhall not here Exhibit, becauſe it properly belongs to the Projection of the Sphere; but ſuppoſing it done, I ſhall direct you how to lay down Places upon the ſame.

SECT. X.

How to lay down Places on Circular Maps.

HAving ſuch a Projection of the two Hemiſpheres upon the Plan of the Meridian with the *Equator*, *Meridians*, *Tropicks* and *Parallels* thereon Diſcribed, ſee Figure 3. 4. 5. *Conſider* the *Longitude* and *Latitude* of any Place is determined by the Meridian and Parallel of that Place, ſo that having the Longitude and Latitude of any Place, we may Inſert it in the Map thus. Count from the

Meridian (or outward Circle) on the Equator the Longitude of the Place you deſire to Expreſs, ſo ſhall you thereby find the Meridian of the Place; then ſeek among the Parallels for the Parallel of Latitude of that Place, and in the Point where the Meridian and Parallels Interſect is the Place to be put in the *Hemiſphere.*

By this Artifice upon one of thoſe propoſed Hemiſpheres may one half of the Earth's Surface (by taking ſeveral Points) be delineated *in Plano*, and will be juſt as it appears to the Eye in the aforeſaid Poſition; and after the like manner is the other *Hemiſphere* to be projected.

If you would make a Map of one of the 4 *Quarters* of the *World*, or of ſome large *Empire or Kingdom*, then you muſt project your Hemiſpheres very large, and cut off ſuch a piece or part of it as is capable to contain the Quarter or Part of the World you would Project: *That is*, cut off in a ſquare Form to ſuch Latitude or Longitude as will include the extream Latitudes and Longitudes of that portion of the Earth you deſign a Map of.

SECT.

SECT. XI.

Of making of Right-lin'd Maps.

MAps that are projected after this way ought to be but of ſmall Places, *That is*, ſuch which have ſcarce any ſenſible Proportion to the whole Surface of the Earth, elſe they will be very Erronious, becauſe the leaſt Portion of the Earth's Surface is Spherical, which if we take for Plan as we do, in this Caſe muſt needs be falſe; eſpecially if the Place be far diſtant from the Equator, for then another Error will be added to the former upon Account of the Longitude; for upon the Equator 70 Engliſh Miles nearly make a Degree of Longitude, but in 30 or 40 Degrees of Latitude not half ſo much, that is, not above 30 or 35 Engliſh Miles, and the more Northward or Southward they go the greater is the Error.

But for ſmall Places lying either upon the Equator or in few Degrees of the ſame, they may without much Error be thus repreſented, their Surface being very little differing from a true Plan.

Conſider both the difference of Longitude and Latitude of the extream Parts thereof, as ſuppoſe I would make a Map of a Place

where

where the difference of Longitude is 4 Degrees; and the difference of Latitude (if they were both North or South, elſe the Sum of them) 6 Degrees.

Firſt draw a Blind-line, then take any length for a Degree, which let be as long as you pleaſe, for the longer the better; this length prick off 4 Lines on the ſaid Line from A to B. *See Fig.* 6. for your Degrees of Longitude, after which from A and B, erect perpenders and take the ſame diſtance as before, and run off 6 times upon it from A and B to C and D. This done, join C D. that is, compleat the the Parallelogram whoſe ſides in this Caſe will be as 6 to 4 *that is*, the difference of Latitude is 6 Degrees, and the Longitude is 4.

It will be neceſſary to ſubdivide each Degree into 6, 10 or more equal Parts as the largeneſs of the Degree will permit; after which prefix both to top, bottom and each ſide the Numbers correſponding to the Latitude and Longitude.

Our Example is for ſuch a Portion of the Earth where the leaſt Latitude is 2 Degrees, and the difference of Longitude 4 Degrees, *that is*, I ſuppoſe the firſt Meridian next the Left-hand to be in 00 *d.* 00 *m.* long, and from that to encreaſe toward the Right-hand, all which is manifeſt by *Fig.* 6..

If the Place be but ſmall, and in 40 or 50 Degrees of Latitude, then you muſt not make your Degrees of Longitude and Latitude equal, for in 60 Degrees of Latitude a Degree of Longitude contains but 35 Miles, and ſo decreaſing, As in 70 Degrees of Latitude 'tis leſs, in 80 Degrees leſs than the former, all which is apparent by the Globe.

And therefore to remedy this Inconvenience, you muſt encreaſe a Degree of Latitude as much beyond its due Extent, as a Degree of Longitude in any Parallel is beyond its Extent; For if a Degree of Longitude in the Parallel of 60 Degrees of Latitude be double the length it ſhould be (as 'tis when made equal to a Degree of Longitude upon the Equator) then the 60 Degrees of Latitude ought alſo to be double to what it ſhould be, by which Means the Error is Remedy'd.

And ſo in any other Proportion, for finding of which, ſay, *as Radius to the Co-ſine of the Latitude*, ſo is the length of a Degree *of Longitude upon the Equator, to the length of a Degree of Longitude in that Parallel.*

I ſhall give an Example of thoſe Directions in ſhewing how practically to make a Map of the Kingdom of *Spain* and *Portugal*, which lies between the 35th and 45th Degree of Latitude, and having 15 Degrees difference of Longitude, the mean Latitude of *Spain* is about 40 Degrees; and therefore to find how many Miles is contain'd in a Degree of Longitude in that Parallel, ſay,

As *Radius*, or Sine of 90 Degrees.	10. 00000.
To Co-Sine of Latitude which is 50 Degrees	9. 81694.
So is 70 Miles the length of a Degree of Longitude on the Equator.	1. 84520.
To 46 Miles, the length of a Degree of Longitude in that Parallel.	1. 66204.

Which ſhews the Proportion that a Degree of Latitude in that Parallel ought to bear to a Degree of Longitude in the ſaid Parallel.

Then if you take any ſmall Space at Pleaſure for a Degree of Longitude on the Equator, and having a Sector, make it a Parallel betwixt 46 and 46 on the Line of Lines, the Sector remaining at this Angle, the Diſtance between 70 and 70 on the ſaid Lines will be the length of a Degree of Longitude in that Parallel ; and is to much above its due length as we make a Degree of Longitude in that Parallel above its length.

This done, draw a black Line and run thereon any Space (you'l take for a Degree of Longitude) 15 times from 35 to 35 ; from theſe two Points Erect two Perpenders, and run from 35 Degrees upwards the length of a De-

Degree of Latitude (found by the foregoing Method) 10 times on each Side, ſetting the Figures 36 37, *&c.* on each Side till you come to the Top which will be 45 then compleat the Parallelogram by drawing the Line 45 45, divide this at the Bottom, and ſet thereto as alſo at the Top the Number 7 8 9, *&c.* which denotes the Longitude from *Pica* Teneriff, it beginning at that Place.

SECT. XII.

How to lay down Places on Right-lin'd Maps.

THe Parallelogram being thus compleated, I ſhall ſhow how from the following Table of the Longitudes and Latitudes of the Boundaries of *Spain* (which I have Collected from a Map, and not from any real Obſervation, being ſufficient for our preſent Purpoſe) to make a Map of the ſame.

		Lat.		Long.	
Lp. *Biſcay.*	*Fuentaravia.*	43	40	15	40
	C. *Machicava*	44	00	14	35
P. *Anoturia.*	*Santillana.*	43	30	13	00
	R. *Aſta.*	43	25	12	15
	C. *Las. pennas.*	44	05	11	30

Riva

		Lat.		Long.	
	Rivadeo.				
K. *Gallicia.*	J. S. *Cibrian.*	43	45	10	15
	C. *De artegal.*	44	05	10	10
	Corrunna.	44	10	9	30
	J. Siſarga.	43	30	9	05
	C. *Finiſterr.*	43	40	8	40
	Bayona.	43	15	8	05
K. *Portugal.*	Porto.	42	10	8	45
	C. *Mondonego.*	41	20	9	05
	C. *Rocca Lisbon.*	40	10	8	30
	Lisbone.	38	45	7	40
	C. *Eſpichel.*	38	50	8	10
	Satuvalal St. *Ubes.*	38	25	8	00
	Odeſines.	38	30	8	25
K. *Algarvi.*		37	4	8	15
	C. S. *Vincent.*	36	50	8	00
P. *Andolouſia.*	*Palos.*	37	05	10	25
	Cadiz or Cales	36	30	0	50
	C. *Tarfalgar.*	36	00	10	55
	Teriffa	35	55	11	10
	Gibraltar	35	50	11	40
K. *Granada.*	*Malaga.*	36	40	12	40
	Salobrena.	36	50	13	50
	Alameria.	37	05	15	15
	C. *Degates.*	36	55	15	30
K. *Murcia.*	R. *Guadalentia.*	37	35	16	05
	C. *Palos*	37	36	16	55
K. *Valentia.*	*Jſ ſola de Palos.*	38	10	17	15
	Alicante.	38	25	17	05
	C. *Martin*	38	45	17	45
	Valentia.	39	25	16	55
	Penis cola.	40	15	17	45
P. *Catalonia.*	*Terri del olivar.*	40	15	18	15
	Terragona.	40	35	19	00
	Barcelona.	40	35	20	10
	Blanes.	41	05	20	40
	C. *de Toſa.*	41	05	20	55
	C. *Paleſugel.*	41	20	21	10
	Soſes.	41	45	20	55
	R. *Egly.*	42	20	20	50
	Cardagne.	42	15	19	35
	Burgnet .	43	00	16	20

Suppoſe *Fuentaravia* which is the Boundary, we begin with being in the Latitude of 43 40 and Longitude of 15 40. I firſt Count from the Bottom upward on each Side 43 40, and to that Point I lay a Rule and draw a Blank Line, then I Reckon from the Left-hand ſide towards the Right, both on the Top and Bottom 15 40, and to theſe Points I lay a Ruler, and where it croſſes the former Line, as at a, there is the Point or Place of *Fuentaravia*; Proceed after this Method to lay the reſt of the Places down at b c d e, *&c.* which done, join all thoſe Points together and it will give you the Form of the Kingdom of *Spain* and *Portugal.*

This brief Account, will I hope, give ſome Light into the Method of making and projecting of Maps.

If a Map was to be made of a ſmall *County*, *Hundred*, *Lordſhip*, &c, of about 20 or 30 Miles round, it is not ſo exactly determined by *Longitudes* and *Latitudes*, but by an actual Survey of the ſame, with ſome Inſtruments, as *Semicircle Theodelite.*

SECT.

SECT. XIII.

General Notes for uſing of Maps.

IN moſt of the Circular Maps, obſerve, That having found the Name, you are not to take that part of the Map, poſſeſt by ſuch Name, for the true poſition of the Place; but you are to ſeek either over, under, or on one ſide of ſuch Name for this Mark (o) and where that ſtands there is the true point of that Place.

In *Right Lin'd Maps*, Towns and Places are generally repreſented by the ſhape of a little Houſe, Cities with the like Mark, but ſomething bigger.

When any Map is placed right before you, then take Notice, That the bottom part, or part next to you, generally is the *Southern* part, the top, or part fartheſt from you, the *North* part; that next your Left-hand, the *Weſt* part, and the other oppoſite, or next the Right-hand the *Eaſt*; which Quarters or Parts are commonly Denoted, either by the Words, *North*, *South*, *Weſt* and *Eaſt*, writ at the Top or Bottom, and on each ſide, or elſe by a Compaſs, which is round like a Wheel, having 32 Points iſſuing from the Center, which repreſents 32 Points of the Compaſs; at the end of one of them is the Picture of a *Flower-de-luce*, which always points exactly to the *North*.

Hence 'tis Evident, That you muſt always ſeek for the *Latitude* on the ſides of the *Map*, and the *Longitude* at Top and Bottom, which ſometimes is differently Numbred, by reaſon that at the top of the Map, the *Longitude* may be reckoned from one place, and at the bottom from another.

Obſerve alſo in Maps of *Empires* and *Kingdoms*, the Diviſions of it, in *Principalities*, *Provinces*, or *Counties*, is generally performed by a ſmall prickt irregular Line.

Rivers, are commonly Denoted by a full *Black Line*, and ſometimes by a *Double Line*,

Roads are variouſly Pictured, *viz.* in ſome *Maps*, by ſmall *Black Lines*, in others, by double *Prickt Lines*, and ſometimes by ſingle *Prickt Lines*.

M*ountains*, are repreſented by a *Black Clouded Figure*, in ſhape like a Bell.

The *Sea* is frequently in all coloured Maps painted *Green*, if the Maps are not coloured, the ſpace Denoting the *Sea* is left White.

The *Land* is bounded from the Sea by an Irregular *Dark clouded Line*, which if the Map be Painted, is generally Coloured.

But in Maps. there is generally an Explanation of the *Marks* and *Characters* there uſed, as how they Note Boundaries, Roads and Rivers; alſo which Mark ſignifies Cities, which Market-Towns, which Villages, *&c.*

Take Notice likewiſe, that to ſeveral Maps, there are three ſorts of Scales, to which are prefixed the Names, *Magna*, *Mediocria* and *Parva*, tho meaning of which is this, that you ſhould meaſure the great Miles upon the *Magna* Scale, The Mean Miles upon the *Mediocria* Scale; And the Small Miles upon the *Parva* Scale; For not only other Countrey Miles differ from ours, but even we among our ſelves, the Miles in *Yorkſhire* and ſeveral other Places being much larger than thoſe about *London.*

SECT. XIV.

How to find out Places upon any ſort of Maps.

THere are but two Methods of finding out Places in any Map, the one is by *Longitude* and *Latitude*, and the other by *Bearing* and *Diſtance*, the former of which is moſt peculiar to circular *Maps*, the latter to right lin'd *Maps*; though either of the ſaid Methods may be uſed for the finding of Places in both kinds of *Maps.*

As to the firſt of theſe, there is one grand Difficulty in it, which is upon account of beginning the *Longitude*, becauſe as I have already obſerved. In one Map, the *Longitude* begins from *Gratioſa*, another from St. *Michael*, a third from *Teneriff*, and a fourth from ſome other place ; ſo that unleſs you know from what place they reckon the *Longitude* of any Map, you can never know by this method, how to find out any place in ſuch Map, though the *Longitude* and *Latitude* of the place be given, which indeed is a very great Misfortune ; For were all the *Geographers* but unanimouſly agreed from whence to begin it, that is, would they but all agree to fix it at any one particular Place, it would make the Science of *Geography* very Eaſie and Pleaſant.

But however, becauſe it is otherwiſe at preſent, I ſhall inſert a Table, ſhewing the difference of *Longitude* betwixt *Pico Teneriff*, and moſt of the principal Places from whence they have begun to reckon, and then proceed to the Method of doing it.

		d.	m.
Betwixt *Pico Teneriff*, and	*Toledo*	15.	53.
	Gratioſa	10.	25.
	Tercera ——— ———	9.	00.
	Palma or Ferro ———	2.	50.
	Corvo ——— ———	13.	25.
	St. *Michael's* ———	8.	5.

Suppoſe in the Sheet-map of the World, that is, in the ſmall *Hemiſpheres*, I would find out *Jeruſalem*, which is in the *Longitude* of 66. *d.* 00. *m.* counted from St. *Michael*'s and *Latitude* of 33. *d.* 10. *m. North.* Here I begin at the outer Circle, which is the firſt *Meridian*, from whence the *Longitude* is reckoned, and count upon the *Equator* 66. *d.* its *Longitude*; then I reckon from the *Equator*, on the firſt *Meridian* upward toward the *North-Pole* 32. *d.* 10. *m.* the *Latitude*, and ſo tracing that Parallel till I come right againſt the *Longitude* I find this Mark (o) and the Word *Jeruſalem* writ cloſe by it, whence I Conclude, that is the true poſition of *Jeruſalem.*

And here, Note, That if in your *Hemiſphere*, the *Longitude* is not reckoned from St. *Michael*'s, but ſome other place, then you muſt conſider whether ſuch place lies *Eaſt* or *Weſt* of St. *Michael*'s, and how many Degrees; and accordingly ſubſtract, or add, ſuch difference from or to the given *Longitude* of any place, to get the *Longitude* of ſuch place in that Map.

As for Example; Suppoſe I look in a Map for *London*, whoſe Longitude from St. *Michael*'s is about 27 *d.* 30. *m.* Now perhaps this Map begins the Longitude from the *Weſtermoſt* part of *Spain*, which is 16 Degrees *Eaſt* of St. *Michael*'s; here I muſt Subſtract 16 from 27. 30. the Remainder 11. 30. is the

Longitude of *London* in ſuch Map. If the Map had begun his Longitude from any place that lies *Weſt* of St. *Michael*'s, as from the Iſle *Corvo*, which is near 5 *d.* 20 *m.* *Weſt* of St. *Michael*'s, then to 27. 30. I muſt have added 5 Degree 20. *m.* and it will give 32 *d.* 50. *m.* the Longitude of *London* in that Map, which reckons his Longitude from *Corvo*.

The ſecond way how places may be found, is thus: Suppoſe I would find *Bourdeaux* in *France*, whoſe bearing is very near full *South* from *London*, and diſtance therefrom about 200 Miles; here I trace the *Meridian* that paſſes through *London*, which may nearly be done by the Eye or a Rule (if none be actually drawn) 200 Miles, and there about you ſhall find the ſaid place.

There is another way for finding out places upon Maps, but it is peculiar, and ſerves only ſome ſort or kind, the method of it is thus: The Maps are (by lines drawn Parallel to the ſides thereof) divided into certain long Slips, or Spaces, about an Inch broad; which ſpaces are again ſubdivided into ſmall Squares, by other lines drawn Parallel to the top and bottom near the ſame diſtance of the former.

On both ſides of the Map, againſt each Space, are ſet Letters, as *a*, *b*, *c*, *d*, &c. There are alſo both at Top and Bottom of the Map other Letters ſet differing from the former; by help of theſe Letters a Table is conſtructed,

having

having in it the Names of all the Places, and againſt each Name two Letters, as *(ab)* or *(bm)* &c. by which Letters I can find out any Place in the Map. Thus, ſuppoſe I ſeek for *Babylon*, in ſuch a ſort of Map, againſt which I find *(c s)* then I ſeek on the ſide of the Map for *c*, and at the top for *s*, and at the Angle of meeting, that is in the little Square, right againſt both theſe Letters, is *Babylon*, the Place ſought.

But in moſt of theſe ſort of Maps, there generally are Directions for the uſing of them, Printed in ſome vacant place of it.

SECT. XV.

Of Meaſuring Diſtances on Circular Maps.

FIrſt, If the two Places, whoſe Diſtance you ſeek, lie on the *Equator*, then the Degrees upon the *Equator*, contain'd betwixt them, multiplied by 70, gives the Miles they are diſtant from one another.

Secondly, If the two places have the ſame *Longitude*, and both *North* or *South* Latitude, then the difference of their *Latitudes* multiplied by 70, gives their diſtance in Miles.

Thirdly, If the two places have the ſame *Longitude*, but different *Latitudes*, i. e. one *North*, and the other *South*, then the ſum of their *Latitudes* multiplied by 70, will give their diſtance in Miles.

Fourthly, If the two places have both *North* or *South* Latitude, but 180 Degrees difference of *Longitude*, then the ſum of the Complements of their Latitudes multiplied by 70, gives their diſtance in *Engliſh* Miles.

Fifthly, If the two places have different *Latitude*, i. e. one *North*, and the other *South*, and 180 Degrees difference of *Longitude*, then the difference of their *Latitudes* taken from 180 Degrees, and the remainder multiplied by 70, gives their diſtance in Miles.

If the places be not in any of the Poſitions aforeſaid, but differ both in *Longitude* and *Latitude*, then having their *Latitude* and difference of *Longitude* with a Scale of verſed Sines, to find their diſtance, proceed thus:

Suppoſe the diſtance was required betwixt *London*, whoſe Latitude is 51 *d.* 30 *m.* *N.* and *Babylon* in *Caldea*, whoſe Latitude is 35. 00. N. their difference of Longitude being 47 *d.* 30 *m.*

Firſt, draw a Line at Pleaſure, and with the verſed Sine of 90 Degrees, deſcribe the Semicircle *a f b*; this done, find the ſum and difference of both *Latitudes*, take the ſum 86. 30. from 180 Degrees, the remainder 93 *d.* 30 *m.* take from the Scale of verſed Sines, and ſet from *a* to *b* on the Diameter *a b*; take alſo 16 *d.* 30 *m.* the difference of Latitudes from the ſaid Scale of verſed Sines, and lay from *a* to *c.* In like manner, ſet upon the ſaid Diameter the difference of *Longitude* 47. 30. taken as before from *a* to *d*; Then take the diſtance *b c*, and ſet from *b* to *f* upon the Arch, and draw the Line *a f*, which done, with your Compaſſes take the neareſt diſtance betwixt *d*, and the Line *a f*, and lay from *c* to *g*; the diſtance *a g* taken off and applied to the Scale of verſed Sines, will give near 37 *d.* 30 *m.* which multiplied by 70 giveth 2625, their neareſt diſtance in *Engliſh* Miles

There is another way which is ſometimes uſed for meaſuring Diſtances upon theſe general Projections. But it is not ſo exact as the former, and therefore not to be uſed where Nicety is required. The method of Performance is thus.

Take the Diſtances of the Places (as they lie in the Map) betwixt your Compaſſes; this Extent apply either to the *Eaſt* or *Weſt* ſide, as right againſt the two places as you can, and it will give you the Degrees they are diſtant, which if multiplied by 70. gives their Diſtance in *Engliſh* Miles.

And here Note, That the farther diſtant Places are, the greater is the Error, and contrary, *&c.*

This Method is to be uſed only upon Maps of the Quarters, and great Empires or Kingdoms; ſuch as, *Tartary*, *Germany*, *Ægypt*, and the like, and not of the *Hemiſpheres*.

Other ways there are for finding the diſtance of Places, both as they lie in the *Hemiſpheres*, or by having their *Latitudes* and difference of *Longitudes*, but they being ſomething foreign to the preſent Deſign, becauſe not practicable without the knowledge of the Nature of Projection and Calculation, I purpoſely neglect them.

SECT. XVI.

How to Meaſure Diſtances on Right Lin'd Maps.

DIſtances are eaſily Meaſured on theſe ſort of Maps; for having found the two Places on the Map, whoſe Diſtance you require, ſet one foot of the *Compaſſes* in one place, and extend the other foot to the other; this Extent applied, either to Bottom, Top, or Sides of the Map, ſhews you how many Degrees they are diſtant, which multiplied by 70, gives their diſtance in *Engliſh* Miles, if there be any odd Minutes above the Degrees for every 6 of them, allow 7 Miles

But generally to theſe kind of Maps, there is annexed a Scale of Miles, ſo that having the diſtance betwixt any two places, 'tis but applying it to this Scale, and you have the the Miles they are diſtant by inſpection.

But for thoſe Maps, where a Degree of Longitude is not equal to a Degree of Latitude, there you muſt uſe the ſame Method you did in Circular Maps; that is, take the Diſtance of the two Placcs (as the lye in the Map) betwixt your Compaſſes; this Extent apply either to the Eaſt or Weſt Side, (that is, on the Line upon which the Latitude is reckoned) and as right againſt the Two Places as you, it will give you the Degrees they are diſtant; which if multiplied by 70, gives their Diſtance in Engliſh Miles *nearly*, Thoſe are principal practical Directions relating to the Knowlegde of Maps, I ſhall now give you ſome pleaſant Diſcourſes about the *Zones Climates*, and other Properties of the Earth, much conducing to the Knowledge of this excellent Science of *Geography*.

SECT XVII.

Of the Zones.

A *Zone* ſignifies a *Belt* or *Girdle*; but here is to be underſtood a certain quantity of Land, included by (one or) two *Parallels*. Now the Number of *Zones*, Geographers have divided the Globe into, are Five: Of which there are two *Temperate*, two *Frigid* or *Frozen*, and one *Torrid*.

The *Torrid Zone* is that ſpace of Earth, contained betwixt the two *Tropicks*, viz. *Cancer* and *Capricorn* being in Breadth 47 Degrees, which is 3290 *Engliſh* Miles; upon this *Zone* or Tract of Earth, lies moſt part of *Africa*, a great part of *South America*, alſo ſeveral Iſlands, as *Java*, *Sumatra*, St. *Thomas*, &c. The Antients, both *Philoſophers*, *Divines* and *Poets*, counted this *Zone* altogether inhabitable, by reaſon of the extream Heat, and therefore termed it Intemperate, but later Diſcoveries have prov'd to the contrary. The Inhabitants of this *Zone* are called *Amphiſcians*, becauſe they have their Shadows both ways at Noon, that is, one part of the Year it is toward the *North*, and the other part toward the *South*

The *Temperate Zones* are thoſe ſpaces of Earth, included betwixt the *Tropicks* and *Polar*

Polar Circles, the *North* temperate *Zone* being that portion of Earth contained betwixt the *Tropick* of *Cancer* and *Artick Circle*; the *South* Temperate *Zone*, is that part or portion of Earth, bounded by the *Tropick of of Capricorn* and *Antarctick* Circle; each of theſe *Zones* are in breadth 43 Degrees, that is, 3010 Miles; in the *Northern* Temperate *Zone*, lies almoſt all *Europe* and the *North* of *Africa*, as alſo a conſiderable part of *Aſia* and *America*; the *Southern* Temperate *Zone* is not ſo well known to us, it being far diſtant from our Habitation. Theſe *Zones* are termed Temperate, becauſe the Sunbeams being caſt Obliquely, cannot create that exceſſive Heat, as they do where they fall Perpendicular. They in ſome meaſure partake of the Extremities of Heat and Cold, proceeding from the *Torrid* and *Frigid Zones*; thoſe that inhabit in theſe *Zones* are called *Heteroſcians*, becauſe their Shadows are but one way.

The *Frigid* or *Frozen Zones*, are thoſe two Tracts of Earth environ'd by the two *Polar Circles*; that encloſed by the *Artick Circle*, is called the *Northern* Frigid *Zone*; the other Encompaſſed by the Antarctick, is the *Southern* Frigid *Zone*, their Diameter is 47 Degrees, which is 3290 *Engliſh* Miles. Under the *Northern* Frigid *Zone* lies *Greenland*, *Lapland*, *Nova Zembla*, and part of the *Tartarian* Ocean; whether there is any Land in the *Southern* Frigid *Zone*, is not known to us that inhabit this part of the Earth. The Coldneſs of theſe *Zones*, is cauſed from the very Oblique falling of the Sun's Rays upon the Earth's Surface, from which his Action is ſo ſmall, that the Heat proceeding from him in the warmeſt Day they there have, is ſcarce ſufficient to melt the Congealed Rocks of Ice and Snow. Thoſe that inhabit theſe parts of the Earth, are called *Periſcians*, becauſe their Shadows are thrown quite round them, they are under great Inconviences; Firſt, by reaſon of the extream Cold they ſuffer, and Secondly, becauſe their whole Year is but one Day and Night; for when the *Sun* is once riſen, he ſets not again for half a Year together, and when he ſets, riſes not again for as long a time.

SECT XVIII.

Of the Climates.

THe *Climates* are certain ſpaces of Earth, limited by two *Parallels*, diſtant from the Equinoctial toward each Pole. The difference betwixt the *Zones* and *Climates*, is this: The principal Office of the *Zones* is to diſtinguiſh the quality of the Air, in reſpect of Heat and Cold, and the alteration of Shadows:

But the Office of the *Climates* is to ſhew the greateſt difference in the length of the Days and Nights, as alſo the Variation in the riſing and ſetting of the Stars.

Thoſe that live under the *Equator*, have their Day and Night ; equal but thoſe places that recede ſo far from the *Equator*, as to make the difference of the longeſt artificial Day, half an Hour longer than it is, where the longeſt Day is 12 Hours and a half, there ends the firſt *Climate*, and there the ſecond begins ; if therefore according to the encreaſe of Days the *Climates* be reckoned, there will be 24 in each *Hemiſphere*, that is, in all 48, counting no farther than the *Polar Circles* ; for the places in that Parallel of Latitude, conciding with either *Polar Circle*, have their longeſt Day above 24 Hours long. Now *Geographers* have given Names only to 9 of thoſe in the *Northern* Hemiſphere, and theſe Names are taken from the moſt famous places, through which the Parallel Circles paſs that bound them. As,

Dia-Meroes.
Dia-Syenes.
Dia-Alexandrias.
Dia-Rhodu.
Dia-Rhomes.
Dia-Pontu.
Dia-Boriſthenes.
Dia-Britanias.
Dia-Tanaidos.

The *Southern Climates* are diſtinguiſhed by the Word *Ante*, as *Ante Dia Meroes*, *Ante Dia Synenes*, *&c.*

SECT. XIX.

Of the Properties of the ſeveral Inhabitants of the Earth.

THoſe People living juſt put under the *Equator*, have great Heat, having two Summers, one when he paſſes the firſt of *Aries*, the other when he paſſeth the firſt Point of *Libra*, and has alſo two Winters, which are when he paſſes the firſt Points of *Cancer* and *Capricorn*, for then the Sun is fartheſt remote from thoſe People, (though not ſo remote, but that their Winters are much hotter than our Summers;) whence 'tis evident, their two Summers are one *Spring* and *Autumn*, and our Winter and Summer their two Winters; their Noon-Shades are thrown both to the *North* and *South*, and ſometimes directly under them, that is, they have none at all. Their Artificial Day is always juſt 12 Hours long, they ſee the whole *Phænomena* of the Heavens; for all the Planets and Stars to thoſe Inhabitants, do Ariſe, Culminate, and Set once in 24 Hours.

Secondly, For thoſe who inhabit betwixt the Equinoctial and Tropick of *Cancer*, they have ſome Seaſons as the former, *viz.* two Summers and two Winters; for the Sun twice a Year paſſeth their *Zenith*; their Noon-Shadows are likewiſe thrown both to the *North* and *South* part of Heaven, and ſometimes directly under them, their longeſt Day is ſomething longer than 12 Hours.

Thirdly, The Inhabitants under the Tropick of *Cancer*, that is ſuch People that have their *Zenith* in the ſaid Tropick, have the Sun but once a Year in their *Zenith*, and that is when he is in the firſt Point of *Cancer*, they have but one Summer and one Winter; their Noon-ſhadow is always toward the *North*, except when he is juſt in the Tropick, and then there is none at all, their longeſt Day is 13 *h.* 36 *m.* long.

Fourthly, The People that Inhabit betwixt the Tropick of *Cancer*, and the *Circle Artick*; have the Sun never *Vertical*; their Shadows are always thrown toward the *North*, and their Artificial Days is of all lengths, *viz.* from 13 *h.* 36 *m.* to 24 Hours.

Fifthly, Thoſe that have their *Zenith* in the *Artick Circle*, that is, ſuch who live juſt upon that Circle, have the Pole of the Ecliptick juſt in their *Zenith*, and conſequently the Ecliptick coinciding with their Horizon, and therefore the Tropick of *Cancer* muſt be all above the Horizon, and the Tropick of *Capricorn* quite under the *Horizon*, ſo that the Sun being in the firſt Point of *Cancer*, their Artificial Day is juſt 24 Hours long, and their Night but a Moment, their Shadow is caſt quite round them.

Sixthly, The People inhabiting betwixt the *North-Pole*, and *Artick Circle*, have their Horizon cutting the Ecliptick in two Points, and a certain Portion of it equally diſtant from the firſt Point of *Cancer* that never ſets, but remains always above the Horizon; whence it cometh to paſs, that all the time the Sun is paſſingthis Portion of the Ecliptick, they have continual Day and no Night, the length of which is more or leſs, according to the Portion of the Ecliptick that never ſets, being about one Month long when the ſaid Portion is 30 Degrees, two Months when the ſaid Portion is 60 Degrees, or two Signs, and ſo on: That is, the farther *North*, the longer Day, till at laſt you come juſt under the Pole it ſelf, where the whole Year is but one Day and Night, each being half a Year: In this Poſition alſo, there is a certain Portion of the Ecliptick, equidiſtant from the firſt Point of *Capricorn*, that never riſes or comes above the Horizon, ſo that during the time the Sun is paſſing the ſaid Portion, there is perpetual Night to theſe Inhabitants, their Shadows are alſo projected quite round them.

Seventhly, As for thoſe People (if any be) inhabiting juſt under the Pole, they have the Equinoctial coinciding with their Horizon, and have always but the *Northern* half of the Ecliptick above the Horizon, ſo that their Year is but one Natural Day as before was hinted; for when the Sun paſſeth the firſt Point of *Aries*, then to thoſe People he ariſes, and ſets not again till he paſſes the firſt Point of *Libra*, which is half a Year after, they never ſee no more than half the Heavens at once, all the *Southern* Hemiſphere being totally obſcured from their Sight; their Shadow is likewiſe caſt clear round them, the end of it projecting a *Concentrick Circle*.

SECT. XX.

Of the Perieci, Antieci, *and* Antipodes

THE Inhabitants of the *Earth*, compar'd with one another, in reſpect of their *Situation*, are *Perieci*, *Antieci* and *Antipodes*.

The *Perieci* are thoſe People that dwell in oppoſite Points of the ſame Parallel; that is, they have the ſame Latitude with us, but 180 Degrees Difference of Longitude, and therefore their Days and Nights are equal to ours, only they are contrary; that is, our Noon is their Midnight, and our Evening their Morning, *&c.* their Seaſons are at the ſame time with ours.

Antieci are thoſe People that dwell over againſt each other; they have the ſame Meridian, and are equally diſtant from the *Equator*, one having as much *South Latitude* as the other has *North Latitude*; they have the ſame Hours with us; that is, our Noon and their Noon is at the ſame Inſtant of Time; but the Seaſons are different, for when 'tis Summer with us 'tis Winter with them; and contrary.

The *Antipodes* (as the Word Imports) are ſuch as Dwell Feet to Feet; that is, they are ſuch People as Inhabit juſt Under us, having as much *South Latitude* as we have *North*, and 180

Degrees Difference of *Longitude*; their neareſt Diſtance is half the Circumference of the Earthly Globe, or 180 Degrees, which is 12485½ *Engliſh* Miles. Their *Hours*, *Seaſons*, and all other *Accidents* are quite contrary; for our Noon is their Midnight, our Summer their Winter, and our Autumn their Spring; we can ſee no more of their Stars than they can of ours; and the Stars that never riſe to them, never ſet to us; and contrary.

This Doctrine of the *Antipodes* has been very much ridicul'd by the Antients, inſomuch that *Boniface*, Archbiſhop of *Mentz*, happening to ſee a Tract written by *Virgilius*, Biſhop of *Saltzburg*, touching the *Antipodes*, and not knowing what Damnable Doctrine might be Couched under that ſtrange Name, Complained firſt to the *Duke* of *Bohemia*, and after to *Pope Zachary*, *Anno.* 745. by whom the poor Biſhop was Condemn'd of Hereſie; but *Boniface* might the better be Excus'd, in regard many of his Betters fell under the ſelf-ſame Errour.

For the Venerable *Bede*, a Man whoſe Books Archbiſhop *Boniface* was not worthy to carry, Eſteemed the Opinion of the *Antipodes* to be no better than a Fable. And yet the wonder is not ſo very great in him neither, when we Conſider that he lived in the Times when Learning was Declining; eſpecially when St. *Auguſtine Lactantius*, and ſome other of the Antient Writers, who lived when Learning was at the height, Condemn this Notion of the *Antipodes* for an Incredible Ridiculous Fable.

S E C T. XXI.

Of the Proportion *of our* Engliſh *Miles to ſeveral other Country Miles.*

THE Common *Engliſh* Statute Mile contains 5280 Feet, or 1760 Yards; of theſe there goes $69\frac{2}{3}$ to a Degree.

Of the *Italian* Miles there goes but 60 to a Degree, and therefore $1\frac{1083}{5000}$ *Engliſh* Miles.

The *German* Mile contains $4\frac{869}{1000}$ *Engliſh* Miles, and conſequently 15 of them make a Degree.

The *Scotiſh* Mile contains $1\frac{425}{1000}$ *Engliſh* Miles, therefore near 56 goes to a Degree.

Of the *Spaniſh* Leagues there goes near 22 to a Degree, one of the ſaid Leagues containing 17000 *Engliſh* Feet, $3\frac{116}{160}$ *Engliſh* Miles.

The Sweediſh League contains 25000 *Engliſh* Feet, and therefore $4\frac{388}{528}$ *Engliſh* Miles; of theſe there goes near 15 to a Degree.

The *Hungarian* League contains 30000 *Engliſh* Feet, which is $5\frac{360}{528}$ *Engliſh* Miles, of theſe between 12 and 13 make a *Degree.*

The Miles uſed by the *Engliſh* and other Navigators, called by them *Meridional Miles*, are ſuch as 60 make a Degree, and therefore ſomething bigger than the *Engliſh* Statute-Mile.

I ſhall give a Tabular Proſpect of their Proportion compar'd to the *Engliſh* Mile.

	*Engl.*Mil.
Italian, or *Meridional* Mile	1. $\frac{1083}{5000}$
Scotiſh Mile	1. $\frac{222}{528}$
Spaniſh League	3. $\frac{116}{160}$
German Mile	4. $\frac{869}{1000}$
Hungarian League	5. $\frac{360}{528}$

SECT XXII.

Of the Likeneſs of the Shape of ſeveral Countries to other things.

SEveral *Geographers* in their Deſcriptions have fancied the Faſhion of this or that Country to be like ſome Natural or Artificial thing; our Iſland they have likened to a *Triangle*, and indeed it doth not much deviate from it.

The moſt Ancient Writers in *Polidore Virgil* have reſembled the *Iſle of Wight* to an Egg; *Peloponneſus* they have likened to a *Plantain*

Leaf; *Strabo* likened *Europe* to a *Dragon*; ſome of late have likened it to a *King's Daughter*, in which they make *Spain* reſemble the *Head*, *Italy* the *Right-Arm*, *Cymbrica Cherſonneſus* the Left, *France* the Breaſt, *Germany* the *Belly*, &c.

Aſia by ſome is likened to a *Half-Moon*; and of *Africa* one ſaith, that it is like the *Duke* of *Venice* his *Cap*. The ſame *Strabo* compares *Spain* to an *Ox-hide* ſtretched out. *Pliny* and *Solinus* liken'd *Italy* to an *Ivy-leaf*, but the late Geographers more Comparably to a *Man's Leg*; this is the rather noted, becauſe ſome Maps alſo are drawn according to this manner of Fancy, as that of *Belgia* by *Kerius*, within the Picture of a *Lion*; for ſo thoſe Countries have been reſembled.

This cannot always fall out, for when *Maginus* comes to tell the Form of *Scotland*, he could liken it to nothing at all.

SECT. XXIII.

Of Eclipſes, *and their Uſe in* Geography.

Though the Buſineſs of *Eclipſes* may ſeem Foreign to our preſent purpoſe, yet conſidering that 'tis by *Eclipſes* the Longitude of Places is beſt determin'd, I ſhall therefore

ſhow

ſhow, *Firſt* what they are; *Secondly*, how they are cauſed; and *Thirdly*, their Uſe in *Geography*.

Firſt, An *Eclipſe* is a *defect* of *Light* happening in ſome of the Cœleſtial Bodies, being cauſed by the Interpoſition of an Opaque Body and our Sight, ſo that 'tis only a depriving our Sight from a Luminous Body by an Opaque coming between.

Secondly, The moſt viſible and noted *Eclipſes* are thoſe of the *Sun* and *Moon*; thoſe of the Sun are cauſed by the Diametrical Interpoſition of the Moon betwixt him and our Sight; theſe can never happen but at the Conjunction of the Sun and Moon; yet every Conjunction doth not cauſe an *Eclipſe* by reaſon of her Latitude, tho' ſeldom a Year paſſes without an Eclipſe of the Sun in ſome part of the Earth or other, becauſe twice a Year the Sun and one of the *Moon's Nodes* meet.

If now the meeting of the Sun and one *Node* be exactly at the time of Oppoſition, then the Sun will appear totally Eclipſed, if the Moon be ſo near the Earth as to cover him; if not, there will appear a Ring of Light about the Sun: But if this meeting of the Sun and *Node* be not exactly at the time of Oppoſition, but within half a Degree of the ſame, then the Eclipſe will be but partial, and will be greater or leſſer, according as 'tis nearer or farther from the *Node*; but if this Conjunction be above half a Degree from the *Node*, he then will eſcape an Eclipſe that time.

A *Tipe* of an Eclipſe of the Sun is ſhown in *Fig.* 9. where *n* is the *Node*, *s* the *Sun*, *m* the *Moon*, *e* the *Earth*, the *black place* of the Earth, that part of it to which the Eclipſe is viſible; for all on that ſpace of the Earth can't ſee the Sun becauſe the Moon is betwixt him and their Sight.

Next, *Eclipſes* of the *Moon* are cauſed by the Earth's being betwixt the Sun and her at the time of her Full, or Oppoſition to the Sun; but this doth not happen at every Full, becauſe of her Latitude; for if the Sum of the Semidiameters of the Moon and Earth's Shadow be more than the Moon's Latitude at the time of Oppoſition, ſhe will be Eclipſed; but if the Sum of the Semidiameters be leſs than the Moon's Latitude, ſhe cannot ſuffer an *Eclipſe* that Full; and tho' this happens not at every Full, yet ſhe rarely paſſeth a Year together without being Eclipſed little or much.

A *Tipe* of an Eclipſe of the Moon is ſhown in *Fig.* 10. where *e* denotes the Earth, *s* the Sun, *m* the Moon, the *dark part* of the Moon that which appears Eclipſed, and the *dark part* of the Earth, the Places to whom ſhe ſo appears.

Thirdly, As to their Uſe in *Geography*, this appears from the Obſervations of ſeveral Aſtronomers of the ſame Eclipſe; for the difference of Time betwixt their appearing here, and at any other Place, (the ſame number of Digits Eclipſed) converted into Degrees and Minutes, will give the difference of Longitude of thoſe two Places: For Example, ſuppoſe at *Paris* the Moon is obſerved Eclipſed 7 Digits, at 9 H. 30. Min. P. M. and the ſame Eclipſe is obſerv'd at *London* 7 Digits at 9 H. 40 Min. here the difference of Time, which is 10 Minutes, being converted into Degrees, (allowing after the rate of one Hour of Time for 15 Degrees of Motion) will give 2 Degr. 30 Min. for their Difference of Longitude.

After this manner has the Longitude of ſeveral Places been aſcertained, as may be ſeen in ſeveral of the *Philoſophick Tranſactions*.

---

2 AU 65

SECT. XXIV.

A Catalogue of ſome of the Chiefeſt Places in the World, with their Latitudes *and* Longitudes, *from* Teneriff, *one of the* Canary-*Iſlands.*

Places Names.	Long.		Lat.	
ABerdeen.	17	15	57	20
Adrianople.	51	00	43	18
Alcantara.	10	30	39	25
Amſterdam.	24	00	52	29
Antwerp.	33	36	51	16
Athens.	47	30	37	42
Aracta.	69	00	36	00
Alicant.	17	20	38	25
Bajona.	8	02	42	08
Barcelona.	20	33	40	34
Belgrade.	43	28	42	04
Berwick.	17	30	55	50
Breme.	28	16	53	22
Bilboa.	14	22	43	47
Bononia.	32	04	44	08
Bourdeaux.	17	50	44	50
Bruſſels.	23	36	50	54
Babylon.	66	30	35	00
Bethlehem.	61	00	31	50
Briſtol.	16	00	51	50

Cadiz.

Places Names.	Long.		Lat.	
Cadiz.	10	42	36	32
Calais.	21	04	51	02
Cambridge.	18	50	52	17
Candia.	50	25	34	55
Canterbury.	20	00	51	28
Cartagena.	16	38	37	44
Cologn.	26	32	50	55
Compoſtilla.	09	00	43	00
Conſtantinople.	54	20	43	00
Copenhagen.	32	30	56	13
Corinth.	47	10	37	15
Corunna.	08	18	43	32
Cracow.	40	47	49	56
Cremona.	30	14	44	42
Calicut.	88	00	11	30
Damaſcus	64	30	34	00
Dantzick.	40	42	54	13
Darmſtadt.	28	16	49	41
Dort.	23	52	01	43
Dublin.	12	00	53	20
Durrezzo.	42	26	41	03
Edenborough.	15	30	56	07
Exeter.	15	02	50	40
Franckford Odor.	34	54	52	18
Franckford Maine.	28	12	50	03
Florence.	32	10	43	20
Fontainbleau.	21	49	48	18
Gratz.	36	23	47	13
Ter-Goeſe.	24	08	51	33
Gaunt.	22	58	51	06
Goa.	106	30	16	00

Haſſina

Places Names.	Long.		Lat.	
Hoffina.	32	00	55	43
Huningen.	27	16	47	36
Hamburgh.	29	20	53	57
Hannover.	29	36	52	35
Jeruſalem.	64	30	32	10
Jaen.	13	48	37	50
Jaſſy.	49	50	41	45
Kempton.	30	28	47	28
Kiel.	31	00	54	45
Kiow.	53	20	50	42
Koningsberg.	40	00	54	30
Lisbon.	07	37	38	45
Leyden.	23	34	52	13
Liverpoole.	16	30	53	20
Lymerick.	09	42	52	32
Lincoln.	18	12	53	17
London.	18	36	51	32
Lyons.	24	08	45	24
Lunenburgh.	30	21	53	42
Madrid.	13	40	40	25
Mentz.	27	43	49	57
Milan.	28	13	44	55
Moſcow.	63	00	55	25
Munſter.	26	48	47	57
Naples.	36	15	40	56
Norimberg.	31	11	49	24
Norwich.	20	10	52	45
Nineveh.	23	14	50	56
Orleans.	20	42	47	44
Oxford.	17	28	51	46
Oſtend.	22	08	51	18

St. *Palais*

Places Names.	Long.		Lat.	
St. *Palais.*	16	49	43	29
Pampelona.	16	06	42	52
Paris.	21	30	48	45
Philipsberg.	28	10	49	04
Prague.	34	33	49	58
Quintin.	22	28	49	52
Rome.	34	22	41	50
Roterdam.	23	34	52	00
Rodes.	21	21	44	07
Rochelle.	17	17	46	07
Reguſa.	40	20	43	03
Rheims.	23	18	49	13
Smyrna.	52	30	38	50
Stockholm.	39	05	59	26
Syracuſe.	37	20	36	18
Strasburg.	27	26	48	28
Thebes.	48	18	38	00
Theſſalonica.	47	00	41	37
Toledo.	13	30	39	24
Trent.	31	24	45	48
Tryers	26	00	49	50
Valence.	24	12	44	32
Vienna.	37	05	48	14
Venice.	33	04	49	20
Valentia.	17	15	39	25
Warwick.	17	30	52	25
Wittenburg.	33	02	51	54
Woolfembuttel.	39	30	52	28
Wincheſter.	17	00	51	13
Worms.	28	00	49	32
Xacca.	34	46	36	19

Xativa

Places Names.	Long.		Lat.	
Xativa.	17	00	38	56
Xeres-de-le-Frontera.	10	52	36	44
Yarmouth.	20	30	52	45
York.	17	46	54	00
Ypres.	22	03	50	27
Zurick.	28	12	47	12
Zara	37	20	44	34
Zagrab.	37	27	46	11

I cannot Promiſe the *Longitudes* and *Latitudes* of ſome of the Places here ſet down are exactly true, that is, to ſome few Minutes, becauſe they have been taken from ſeveral Authors; but they are ſo near as that they may be found out in any Map in which they are placed.

S E C T. XXV.

An Account of the Factories, *and* Places *now in Poſſeſſion of the* Engliſh, French, Dutch, Spaniſh, Portugueze *and* Danes, *both in the* Eaſt *and* Weſt Indies.

To the Engliſh belong,

- In *Aſia*
  - Fort St. *George* on Coaſt *Cormandel.*
  - *Bombay* Caſtle and Iſland on the Weſt Coaſt of *Decan.*
  - a Trade or Factories at
    - on Coaſt *Cormandel.*
      - *Caracal*
      - *Trimly-Watch*
      - *Trimly-Baſs*
      - *Fort Nova*
      - Fort St. *David's*
      - *Cudalor*
      - *Cunnamere*
      - *Manyetckpatam*
      - *Arzapore*
      - *Petti-Poli.*
      - *Maſſalipatam*
      - *Madapollam*
      - *Viceagaparam*
    - in Gulf of *Bengal.*
      - *Bengal*
      - *Hugly*
      - *Balleſore*
      - *Caſſumbezar*
      - *Maulda*
      - *Daca*
      - *Tutta Nutta*
      - *Pattanna*

In *Aſia* a Trade or Factories at

- *Agra*
- *Cambaya*
- *Surat*
- *Amadarad*
- *Baroch*
  - in the *Mogul*'s Empire.
- *Callicut*
- *Garnar*
- *Guſſarat*
- *Cambaia*
- *Batticullay*
- *Durnoſotonam*
- *Tulley Chercy*
- *Beattaer*
- *Bringon*
  - on the Coaſt of *Malabar*.
- *Dabul* in *Decan*.
- *Muſcat*
- *Mocha*
- *Mackulla*
- *Shabare*
- *Kiſen*
- *Durgee*
- *Deffare*
- *Aden*
  - in *Arabia Felix*.
- *Iſpahan*
- *Gombroone*
- *Buſſora*
  - in *Perſia*.
- *Smyrna* in *Natolia*.
- *Aleppo* in *Syria*.
- *Achem*
- *Indrapona*
- *Bengalis*
- *Jambe*
- *Eyer Bauna*
- *Eyer Diekeſs*
- *Tryamong*
- *Eppou*
- *Bancoula*
- *Silabar*
  - In Iſland *Sumatra*.

In *Aſia* a Trade or Factories at

Peque
Tinnacore on the *Malay* Coaſt.
Cudda
Tunqueen
Canton
Emoy in *China.*
Hockſien
Teſiampoo-Coaſt
Siam in the Kingdom of
Camboida *Siam.*
Mindano in the Iſland *Mindano:*
Borneo in the Iſland *Borneo.*
Juddá upon the *Red Sea.*
Macaſſar in *Iſle*
Celebes, now Expell'd:
Bantam in *Javá*,

In *Africa*

St. *Helena* Weſt of *Ethiopia.*

a Trade or Factories at

Charles Fort upon Iſl. Riv. *Gambiá.*
Sierra d'Leon upon *Bence* Iſland.
Serbera River on the Coaſt of
Druwyn River *Malguette.*
Rio d'St. Andreo
Jaque Jeaque on the *Quaquá*
C. St. Appolonia Coaſt.
Axym in *Comore* Bay.
Succunde
Cabo Corſo chief of all
Fredericksburg, *Daniſh*, on the
but ſold to the *Engliſh* Golden
Anniſhan Unfortified Coaſt.
Annamabou
Aggau, of no Defence
Loango
Melemba in the Kingdom of *Lo-*
Cabenba *ango:*

- In *America*
  - New *England.*
  - New *York.*
  - *Penſilvania.*
  - New *Jerſey*
    - Eaſt.
    - Weſt.
  - *Maryland.*
  - *Virginia.*
  - *Carolina.*
  - As alſo they poſſeſs Port *Nelſon* in *Hudſon*'s Bay.
  - Many Iſlands particularly thoſe of
    - *Newfoundland* in part.
    - *Jamaica*, one of the Greater *Antilles*
    - *Bermudus* Eaſt of *Florida*.
    - New *Providence* of the *Lucajos*.
    - Long *Iſland* South of New *York*.
    - Ten of the *Caribee* Iſlands.
      - *Anguilla*,
      - *Berbada*,
      - St. *Chriſtopher*,
      - *Nevis*,
      - *Antego*,
      - *Montſerrat*,
      - *Dominica*,
      - St. *Vincent*,
      - *Barbadoes*,
      - *Tabago*,
  - Some Settlements at *Surinam* and *Morone* on the Coaſt of *Terra Firma*.

To the *Spaniards* belong

- In *Aſia*
  - Six of the *Philippin*, and moſt of the Reſt.
    - *Luconia*,
    - *Tandaya*,
    - *Mindano*,
    - S. *Juan*,
    - *Mindore*,
    - *Panay*;

Africa
- The Trade on the Weſt Coaſt of *Africa*.
- The *Canary* Iſlands.

In *America*
- New *Spain*.
- A conſiderable part of New *Mexico*.
- in *Florida*.
  - St. *Auguſtins*
  - St. *Matthews*
- *Terra Firma*.
- *Peru*.
- *Chili*.
- A great part of *Paragua*.
- Several Iſl. particularly thoſe of
  - *Cuba*.
  - *Hiſpaniola*.
  - *Port-Rico*.

To the *Portugueze* belong

In *Aſia*
- Several Factories in *Perſia*.
- upon the *Ganes*.
  - *Aſterim*
  - *Ougelli*
- in *Decan*.
  - *Chaul*, a conſiderable Town
  - *Maſagan*, a little Village
  - The Forts of *Morro*, *Caranga*
- *Elephanta* Iſland near that of *Bombay*.
- *Goa*, with her Fortreſſes and adjacent Iſlands
  - *Coran*,
  - *Diver*.
- *Diu* Iſland and City near *Guzarat*.
- *Macao* upon the Coaſt of *China*.
- The Fort *Larentoque* in the Iſland *Solar*, Eaſt of *Flores*.
- Much of *Timor*, one of the *Molucco* Iſlands.

In *Aſia* the Trade or Factories at

Aracan
Pegu
Tanacerin
Ligor
Cambodia
Golcond
in Peninſula *Indiæ*, extra *Gangem*.

Agra
Amadabat
Cambaja
Surrat
Baroch
Bengala
already mentioned.

In *Africa*

Mazagan in the Kingdom of *Morocco*.
Some Forts on the River St. *Domingo* in the County of the *Taloſes*.
Some Forts on the Coaſts of *Guinea*. *Congo*. *Angola*.
A great part of the Coaſts of *Cafres*. *Zanguebar*.
The Trade of the Eaſt Country from the Cape *Good Hope* to the *Red Sea*.
Several Iſlands, *viz.*
Iſles of Cape *Verde*
The *Madera's*
St. *Thomas*
Iſle *De Prince*
I. *de Fardinando Poo*
N.E. of St. *Thomas*.

In *America*

All the Coaſts of *Brazil* divided into many Captainſhips.
Eſtero
Conuba
Cogemine
towards the Mouth of the River *Amazon*.

To the *French* belong

- In *Aſia*
  - *Bereaux*
  - New *Surrat* in the *Mogul*'s Empire.
  - The Iſland of St. *Maria* lying S.W. of *Goa*.
  - Some Forts in
    - the Kingdom of *Siam*.
    - the Iſland of *Java*.

- In *Africa*
  - Fort *Dauphin* in *Madagaſcar*.
  - *Senega*, (North of Cape *Verde*) the Chief *French* Factory in *Africa*.
  - A Trade on the River
    - *Senega*.
    - *Gambia*.
  - As alſo at
    - *Ruſiſque* near Cape *Verde*.
    - *Great Seſtre*
    - *Ardra* in *Guinea*.

- In *America*
  - *Montreal*
  - The three Rivers in *Canada*.
  - *Quebeck*
  - *Tadonſack*, and ſome other Places on the River St. *Lawrence*.
  - A great part of *Nova Scotia*.
  - Bay *Plaſenſa*
  - Bay *Blacco* in *Newfoundland*.
  - Fort St. *Louis* in the Iſland *Cayene* E. *Guyanæ*.
  - Several Forts on the Coaſt of *Caribanæ*.
  - Among the *Antilles*
    - St. *Bartholomew*.
    - *Sancta Cruz*.
    - St. *Martin*.
    - *Guadalowpe*.
    - *Le Deſiree*.
    - *Maria Gallants*.

In *America*
- *Les Saintes.*
- *Martinico.*
- St. *Aloiſta.*
- *Granada.*
- *Domingo* in Part.
- *Grenadins.*
- *La Tortue.*

To the *Dutch* belong

In *Aſia*
- On the Coaſt of *Cormandel.*
  - *Tuticoriu*
  - *Negapatam*
  - *Karkall*
  - *Fort Gelders*
  - *Pallecate*
- Several Forts in
  - *Malacca.*
  - *Ceylon.*
  - *Java.*
  - And moſt of the *Moluccoes*, tho' of right they belong to the *Engliſh.*
- Factories at many Places in
  - *Perſia.*
  - The *Mogul's* Empire.
  - *Cormandal.*
  - *Malabar*
  - *Siam.*
  - *Malacca.*
  - *Sumatra.*
  - *China.*
  - *Java.*
  - *Celebes.*
  - *Borneo.*
  - *Arabaia.*

In *Africa*
- *Arguim*, *Gora* — near Cape *Verde*.
- Many Forts in *Congo*.
- Some near the Cape of *Good Hope*.
- St. *Maurice* in *Madagaſcar*.
- Factories in *Guinea*, viz. — on the *Golden Coaſt*.
  - *Boutrou*
  - *Commendo*, formerly *Engliſh*
  - St. *George de'l Mina*, chief of all
  - *Maurea*, or Fort *Naſſau*
  - *Cormantyn*, formerly *Engliſh*
  - *Crevicoeur*

In *America*
- The City of *Coro* in the N. of *Terra Firma*.
- Some Forts on the Coaſt of *Guyana*.
- *Queriſae*, *Aruba*, *Bon Airy* — Three of the *Sotovento* Iſlands.
- *Saba*, *Euſtachio* — Two of the *Caribees* near St. *Crux*.

To the *Danes* belong

In *Aſia* — *Frankebar*, *Dansburg* — on the Coaſt of *Cormandel*.

In *Africa* is *Chriſtianburg*, or St. *Franciſco Xavier* in *Guinea*.

In *America* is New *Denmark* in the North part thereof.

Theſe are the Principal *European* Plantations, both in the *Eaſt* and *Weſt Indies*.

SECT.

SECT. XXV.

Of what Concern the Knowledge and Uſe of MAPS is.

ZOnaras in his *Ann. Tom.* 2. *p.* 397. tells you, that in *Domitian*'s time it coſt one *Metius* his Life for having a Map of the World hanging in his Chamber, becauſe (as was ſuppoſed) he was thought to aſpire to the Empire; and the reaſon given for ſuch Thoughts was, that he ſhould have ſo dangerous a thing as the Picture of the Provinces.

Of what Importance *Julius Cæſar Antonine*, and the other Emperors, held theſe Deſcriptions, is evident by their own *Itineraries* yet to be ſeen.

Felix Maleolus in his Dialogue of Nobility mentioneth a Deſcription of all the World, (which was then known) begun by *Julius Cæſar*, and finiſhed by *Auguſtus*, in which he ſaw ſet down *Gentes & Civitates ſingulis cum ſuis Diſtantis.*

The *Peutingerian* Tables annexed to the Deſcriptions of *Ptolomy* by *Bertius* are famous in this kind. The *Notitia utruſque Imperii*, ſingularly to the ſame purpoſe. *Alexander* the Great went upon no deſign without his Geometricians, *Beton* and *Deogentes*. They are called by *Pliny Menſores*, *Itinerum Alexandri*, and their Deſcriptions were Extent in his time. *Vid. Plin. lib.6. cap.*17.

But the Experience of theſe things is now nearer at hand. Not a Day now paſſeth but ſome knowledge of Geography is required, eſpecially if we deſire to inform our ſelves of the Tranſaction now acting both by our Friends and Enemies in the Neighbouring Nations.

It is certain, that the Greateſt and moſt Publick Affairs of any State have their Dependance upon Foreign Caſes paſt or preſent; and there is not ſo great an alteration in the whole as ſome may think; the Carriage of Matters in Times paſt are not ſo unlike the Things we now act; as not to give us ſome aim. In ſhort, the Face and Picture of all inſtant Actions may be ſeen by reflexion in the future. Or if the ſame Age look upon the *Turk*, the *Venetian* upon us, or we upon them, the like, or not much leſs, will be the Neceſſities of Converſation with Record and Hiſtory. And there cannot be much done in that without an Interview of the Places, which muſt needs be ſeen either with our own Eyes there on the Spot, or with other Mens Eyes here in a Map.

Some Tables very Uſeful and Neceſſary both in *Geography* and *Navigation.*

A TABLE containing the Longitude, Latitude, Declination, Right Aſcenſion, of Twenty of the Principal Fixt Stars for the Year 1700.

Mag.	Stars Names.	Longitude.	Latitude	Declin.	Right Aſcen.
		° ′ ″	° ′	° ′	° ′
1	*Arcturus.*	♎20. 2.20	131.2 ½	20.50	210.30
1	*Alore in the Harp.*	♑11. 6.20	61.47.0	38.32	276.45
1	*Capella.*	♊17.39.20	22.50.½	45.38	73.30
1	*Aldebaran.*	5.35.50	5.31.0	15.42	64.45
1	*Cor Leonis.*	♌ 5.35.50	0.26.0	13.26	148.00
1	*Cauda Leonis.*	♍17.26.20	12.18.0	16.16	173.30
1	*Spica Virginis.*	♎19.39.20	1.59.0	9.32	197.30
1	*Antares.*	♐ 5.32.10	4.27.0	25.40	242.45
1	*Fomehaut.*	♒29.34.50	21.0.0	31.05	340.13
1	*Rigel.*	♊12.40.20	31.11.0	8.35	75.00
1	*Acarnar.*	♓10.50.10	59.18.½	58.57	20.45
1	*Sirius.*	♋ 9.58.50	39.30.0	16.17	98.00
1	*Canopas.*	10.51.10	75.48.0	52.28	94.30
1	*Hydra's Heart.*	♌23. 8.50	22.24.0	7.23	137.45
1	*Centaurus.*	♏25.44.10	42.23.0	59.30	210.00
2	*Marshab.*	♓19.19.50	19.26.0	13.38	342.30
2	*Procyon.*	♋21.41.50	15.57.0	6.00	111.00
3	*Pleiades great* ✱.	♉25.54.22	3.59.0	23.03	52.10
2	*Pollux.*	♋19. 6.20	6.38.0	28.43	111.41
2	*Mirach.*	♈25.42.20	25.59.0	33.52	12.43

A TABLE *ſhewing from the firſt Day of* January, *to every* 10*th Day afterwards, the Sun's* Place, *alſo his Declination, Right Aſcenſion, Oblique Aſcenſion, Amplitude of Riſing and Setting, Time of Riſing and Setting, and Time of Twilight's Beginning and Ending.*

Month Days.		Sun's place.	Declin.	R. Aſſent	Obli. Aſcen.	Amp. of riſ. & ſet from S.	Time of ⊙s riſ. & ſet.	Begin of twilight.	end
		° ′	S. ° ′	° ′	° ′	° ′	h.m.h.	*h. m.*	*h.*
Jan.	1	♑21.25	21.51	292.42	323.03	050.48	8.01.4	5.54	7
	11	♒01.35	19.45	304.16	331.27	056.15	7.48.5	5.43	7
	21	11.44	17.14	314.28	337.27	062.20	7.31.5	5.35	7
	31	21.51	14.12	324.22	342.58	065.43	7.14.5	5.17	7
Feb.	10	♓01.55	10.47	334.00	347.53	072.21	6.55.6	5.00	7
	20	11.57	07.04	343.24	352.25	078.50	6.35.6	4.45	8
Mar.	2	22.55	02.47	353.35	357.06	085.14	6.17.6	4.20	8
			N.						
	12	♈02.50	01.11	002.45	001.14	091.35	5.56.7	3.59	9
	22	12.41	05.08	011.57	005.26	097.58	5.36.7	3.34	9
Apr.	1	22.29	08.35	020.19	009.46	104.24	5.17.7	3.05	9
	11	♉02.14	12.11	029.48	014.10	109.17	4.48.8	2.38	10
	21	11.56	15.28	039.32	019.10	114.17	4.40.8	2.02	10
May	1	21.35	18.18	049.34	024.58	119.24	4.24.8	1.30	11
	11	♊01.11	20.24	058.50	030.54	123.45	4.08.8	0.30	12
	21	10.46	22.08	069.25	038.35	128.23	3.57.9	Twilight all Night.	
	31	20.20	23.07	072.06	046.26	129.12	3.50.9		
June	10	29.52	23.30	090.00	056.48	130.26	3.47.9		
	20	♋09.27	23.11	099.47	067.10	129.12	3.49.9		
	30	18.27	22.08	110.34	079.46	128.23	3.56.9		

A TABLE *ſhewing from the firſt Day of* January, *to every* 10*th Day afterwards, the Sun's Place, alſo his Declination, Right Aſcenſion, Oblique Aſcenſion, Amplitude of Riſing and Setting, Time of Riſing and Setting, and Time of Twilight's* Beginning *and Ending.*

Month Days.	Sun's place.	Declin.	R. Aſcent	Obli. Aſcen.	Amp. of riſ. & ſet from S.	time of ☉s riſ. & ſet.	Begin. of twilight.	end
	° ′	° ′	° ′	° ′	° ′	h. m. h.	h. m.	h.
July 10	♌ 28.30	20.24	121.09	093.13	123.45	4.07.8	0.42	12
20	08.04	18.18	130.25	105.48	119.24	4.21.8	1.22	11
30	17.39	15.28	140.27	120.03	114.17	4.36.8	2.00	10
Aug. 9	27.17	12.32	149.13	132.58	107.37	4.53.8	2.21	10
19	♍ 6.58	08.57	158.43	147.17	104.24	5.12.7	3.00	9
29	16.41	05.08	168.02	161.32	097.53	5.31.7	3.30	9
Sept. 8	26.27	01.35	176.19	174.20	093.11	5.51.7	3.59	9
		S.						
18	♎ 6.17	02.23	185.30	188.30	089.49	6.11.6	4.19	8
28	16.10	06.18	194.43	202.44	080.27	6.30.6	4.48	8
Octo. 8	26.06	10.04	204.05	217.00	073.49	6.50.6	5.00	7
18	♏ 6.06	13.33	213.40	231.20	067.24	7.09.5	5.18	7
28	16.08	16.40	223.31	245.39	072.20	7.27.5	5.37	7
Nov. 7	26.14	19.18	233.39	259.59	058.51	7.43.5	5.45	7
17	♐ 6.22	21.21	244.06	273.37	055.18	7.57.5	5.54	7
27	16.31	22.51	255.52	287.57	050.48	8.07.4	5.57	7
Dec. 7	26.42	23.27	266.43	299.52	050.48	8.12.4	6.00	8
17	♑ 6.54	23.18	277.37	310.30	050.48	8.12.4	5.58	7
27	17.05	22.24	288.36	319.44	051.37	8.06.4		

A Catalogue of the Latitudes *and* Longitudes *from* London *of the Principal Iſlands in the whole World.*

Iſlands within the *Straits*.

Places Names.	Lat.		Long.	
	d.	m.	d.	m.
F*ormentara*	38	44	04	30
Ivica	39	05	04	33
Collombitta	39	50	03	20
Cavrera	39	07	05	41
Majorca	39	38	55	48
Minorca	39	55	06	52
Gallatta	37	57	11	04
Serpentera	39	00	11	54
South-end of *Sardinia*	38	56	11	13
North-end of *Sardinia*	41	10	12	01
Azennera	41	08	10	58
South-end of *Corſica*	41	20	11	37
North-end of *Corſica*	42	55	12	02
Caprera	42	58	12	57
Lilbo	42	31	13	12
Planoſa	42	07	13	09
M. Chriſto	41	55	13	27
Palmarolla	40	50	14	35
Ponſſa	40	40	15	08
Iſcia	40	46	16	12
Strombello	39	03	17	38
Volcanello	38	48	17	06
Felicur	38	43	16	37
Allicur	38	45	16	23

North Latitude.

Eaſt Longitude.

Places

Places Names.	Lat.		Long.	
	d.	m.	d.	m.
Uſtica	38	50	15	34
Middle of *Sicilia*	37	42	16	45
Meſſina	38	07	17	57
Zambra	37	10	13	10
Pantalaria	36	53	14	11
Linoſſa	36	20	14	41
Lampadoſa	35	58	14	35
Sematto	35	46	14	15
Gazo	36	15	15	27
Comino	36	15	16	00
Malta	36	00	16	30
Iſland *Grozo*	44	00	20	12
Poma	43	14	20	24
St. *Andrea*	43	07	20	34
Buze	43	02	20	54
Liſſa	43	00	21	09
Catſſo	42	44	21	34
Agoſta	42	36	21	59
Corſella	42	53	22	14
Mellida	42	37	22	39
Farmo	39	44	23	55
Corfu	39	25	24	02
Cape *Sidro*	38	15	24	09
Zante	37	37	24	14
Sapentia	36	47	24	52

North Latitude. East Longitude.

Iſlands in the *Archipelago.*

Taſſo	40	00	29	55
Lemnos	39	41	30	25
Mettalin	38	54	30	28

Places

Places Names.	Lat.		Long.	
	d.	m.	d.	m.
	North Latitude.		Eaſt Longitude.	
Ipſera	38	28	29	57
Schyro	39	00	28	45
Scatlo	39	42	27	27
Scopollo	39	23	27	53
Hillodromo	39	37	28	02
Largor	39	47	28	31
Tino	37	55	28	49
Sia	37	38	28	27
Femenia	37	28	27	54
Serſanto	36	58	28	15
Millo	36	40	27	45
Levallo	36	38	29	30
Stampalia	36	11	29	35
Weſt-end of *Candia*	35	15	27	01
Middle of *Candia*	35	08	28	32
Eaſt-end of *Candia*	35	04	30	08
Rhodes	35	40	31	58
Middle of *Cyprus*	34	18	37	45

Iſlands in the *Eaſt-Indies.*

	North Latitude.		Eaſt Longitude.	
Romcyros	28	19	73	57
John de Lisbon	25	24	63	08
Diego Roys	20	05	69	30
St. *Brandon*	17	13	69	20
Mauritius	20	10	63	20
Don Maſcharinnas	20	50	61	30
St. *Apolonia*	20	50	60	30
South-end of S. *Lawrence*	25	37	55	30
Middle of St. *Lawrence*	18	30	51	05
Northend of S. *Lawrence*	11	03	58	25

Places

Places Names.	Lat.		Long.	
	d.	m.	d.	m.
John de Nova	17	20	50	05
St. *Chriſtopher*	14	30	50	39
Mayotta	12	40	52	31
Joanna	12	09	51	39
Mohilla	12	11	51	01
Comaro	11	20	50	24
Manſia	07	50	47	44
Zanzibar	06	25	48	11
Pemba	05	09	48	06
John de Comaro	09	00	51	56
Coſmoledo	09	40	56	28
John de Novo	09	00	58	02
Aſlores Ilheos	09	05	59	38
Agalega	09	00	60	51
De Almicanta	33	57	58	04
Iſland *Quehallo*	03	40	58	56
St. *Harmanos*	03	02	65	01
Diego Gratioſa	08	03	72	51
Piedros Blanco	06	10	71	31
Socolora	12	18	68	37
Iſland *de Zocha*	11	22	85	21
Cubolla	08	53	85	43
Molaque	09	05	86	05
Gariſpa	10	50	85	32
Qualpena	10	32	86	34
Andomegon	11	30	85	27
Ceylon	07	50	93	15
Iſland *Cocos*	14	30	109	48
Iſland *de Andemaio*	13	00	109	15
Quarinibar	11	10	109	20
Iſland *Raſe*	09	52	109	09

North Latitude.

Eaſt Longitude.

Places Names.	Lat. d.	m.		Long. l.	m.	
Iſland *de Sombreſe*	08	00	No. Lat.	109	20	East Longitude.
Nicobars	07	00		109	40	
North end of *Sumatra*	05	28		111	15	
Middle of *Sumatra*	01	30	South Lat.	115	25	
South-end of *Sumatra*	05	52		120	24	
Jambe	01	49		117	01	
Bantam	06	15		110	10	

The Southern Iſlands.

St. *Antonio*	17	07	North Latitude.	26	40	Weſt Longitude.
St. *Vincent*	16	55		25	56	
St. *Lucia*	16	50		25	52	
St. *Nicholas*	16	30		24	48	
J. de Sall	17	00		22	30	
Bonaviſta	15	58		22	23	
Mayo	15	00		23	06	
St. *Jago*	14	52		24	06	
Fuogo	14	42		25	20	
Brava	14	49		25	38	
Vegie	12	26		29	12	
Vegie	11	12		31	30	
St. *Paul*	01	32		25	20	
Abroihcos	00	00		26	00	

The *Canary* Iſlands.

Porto Sancto	33	14	Nor. Lat.	16	49	Weſt Lo.
Madara	32	27		18	10	
Dezartes	31	08		17	50	
Salvages	30	05		17	30	

Places

Places Names.	Lat. d.	m.	North Latitude.	Long. d.	m.	Weſt Longitude.
Palma	28	58	North Latitude.	19	06	Weſt Longitude.
Ferro	28	05		20	07	
Gomera	28	09		19	00	
Teneriff	28	10		17	30	
Grand Canaria	27	43		16	35	
Allegranſa	29	11		14	07	
Lancerotta	28	51		14	12	
Forteventura	28	12		14	52	

The Weſtern Iſlands.

Places Names.	Lat. d.	m.	North Latitude.	Long. d.	m.	Weſt Longitude.
Abraojo	38	55	North Latitude.	25	40	Weſt Longitude.
Vegie	40	30		25	42	
Corvo	40	09		32	23	
Flores	39	30		32	19	
Fiall	38	49		35	37	
Pico	38	30		29	00	
St. *George*	39	00		28	44	
Terſera	39	31		27	46	
Gratioſa	39	30		28	15	
Abrajo	39	52		24	17	
Vajo	38	43		23	47	
St. *Michael*	38	00		25	40	
Formiga	37	25		24	00	
St. *Maria*	37	00		24	20	
Vegie	42	22		24	20	
Iſland *Verda*	44	48		28	50	
Maiden Iſland	46	30		20	00	
Old *Brazeel*	51	03		16	50	

Iſlands in the *Weſt-Indies.*

Places Names.	Lat.		Long.	
	d.	m.	d.	m.
Iſland *Fonſeca*	12	24	53	54
La. Bermudas	32	25	63	30
Behama	27	57	78	30
Teavis	27	27	76	28
Sigualro	26	18	74	09
Guarao	25	47	73	24
Guanima	25	15	73	17
Triangulo	24	33	71	54
Guanabimo	23	50	72	03
Mayaguana	23	05	72	15
Cacos	22	05	69	55
Amiana	21	40	70	02
Nagua	21	19	72	27
Yamatta	22	32	73	13
Samane	24	20	74	14
Yamia	24	22	75	34
Jabaque	25	10	76	54
St. *John*	18	30	66	06
St. *Cruſe*	17	42	64	42
Anquilla	18	48	62	24
St. *Martin*	18	35	62	11
St. *Bartholomew*	18	15	61	57
Barbada	17	18	61	03
Antego	16	32	60	16
Diſſeda	16	00	60	00
Marigallanta	15	41	60	50
Dominica	15	00	60	29

North Latitude.

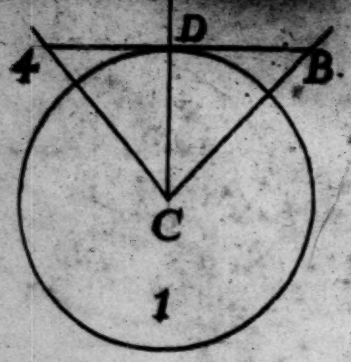
Weſt Longitude.

Places

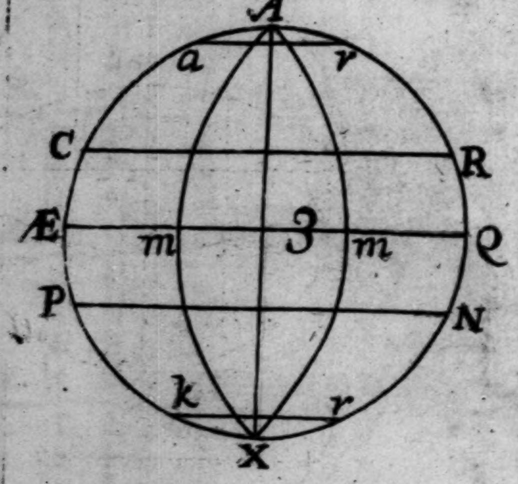
Places Names.	Lat.		Long.	
	North Latitude.		Weſt Longitude.	
	d.	m:	d.	m.
Martineco	14	20	60	08
St. *Luſia*	13	30	60	07
Barbadoes	13	10	57	24
Tobago	11	12	58	30
Point de Gallera	10	45	58	55
Granada	12	10	59	56
St. *Vincent*	12	50	59	52
Guardalupa	16	00	60	55
Monſerat	16	20	61	05
Mevis	17	00	61	51
St. *Chriſtopher*	17	30	62	09
Iſland *Blanco*	12	20	62	16
Margarita	11	28	62	01
Tortuga	11	30	63	04
I. *de Orchita*	12	19	63	25
Iſland *Aves*	12	29	64	46
Boniaire	12	32	65	18
Queriſa	12	25	66	03
Aruba	12	45	66	46
Middle of *Hiſpaniola*	18	50	70	22
Port Royal	18	15	76	45
The Middle of *Cuba*	22	00	81	20
Caimanis	19	41	83	05
Grand Caiman	19	21	80	30
Stantavilla	17	28	83	14
Moſquito	14	50	81	28
Guanabo	16	33	86	43
Guanabimo	16	10	88	28
Cozumal	19	25	90	20
Laſalleiranas	22	00	93	22

Places Names.	Lat. d.	Lat. m. North Latitude.	Long. d.	Long. m. West Longitude.
Iſland *Delas*	23	30	97	22
Abrajo	25	50	99	24
La*barmaja*	22	55	98	40
Iſland *de Arenas*	22	36	98	38
Zarka	20	50	98	24
Iſland of *Providence*	13	27	80	00
St. *Andrea.*	12	42	86	21

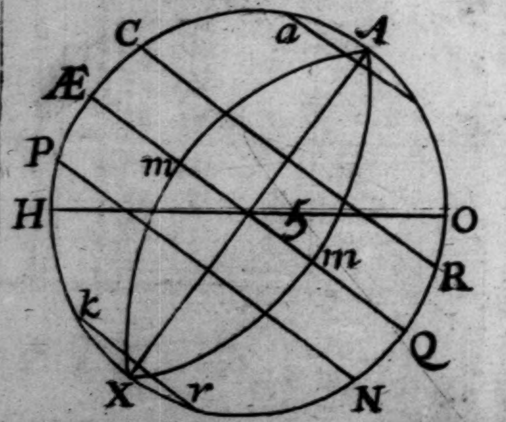
2 AU 65

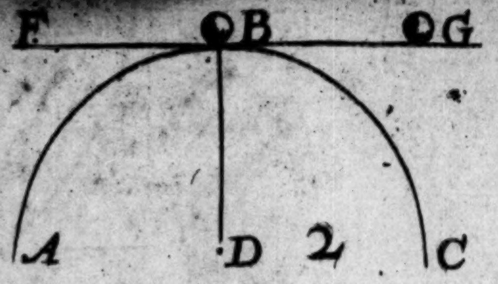


Parallel Position

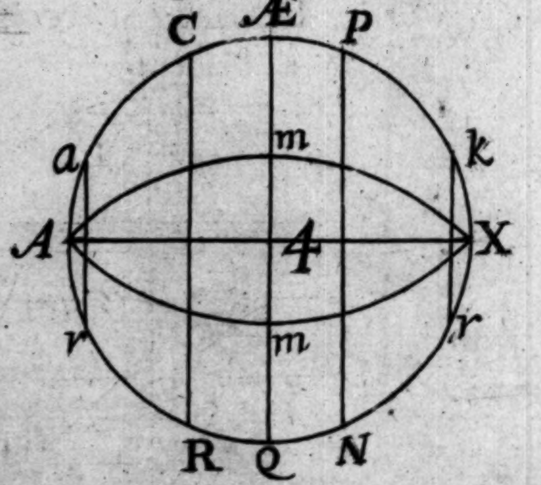


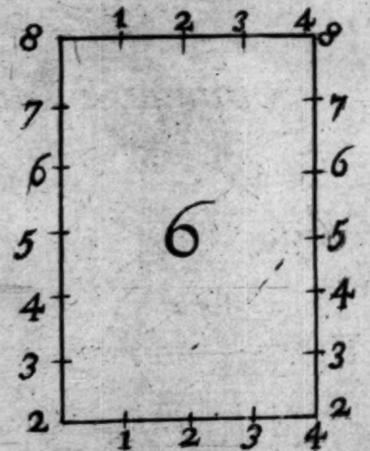
oblique Potilion.

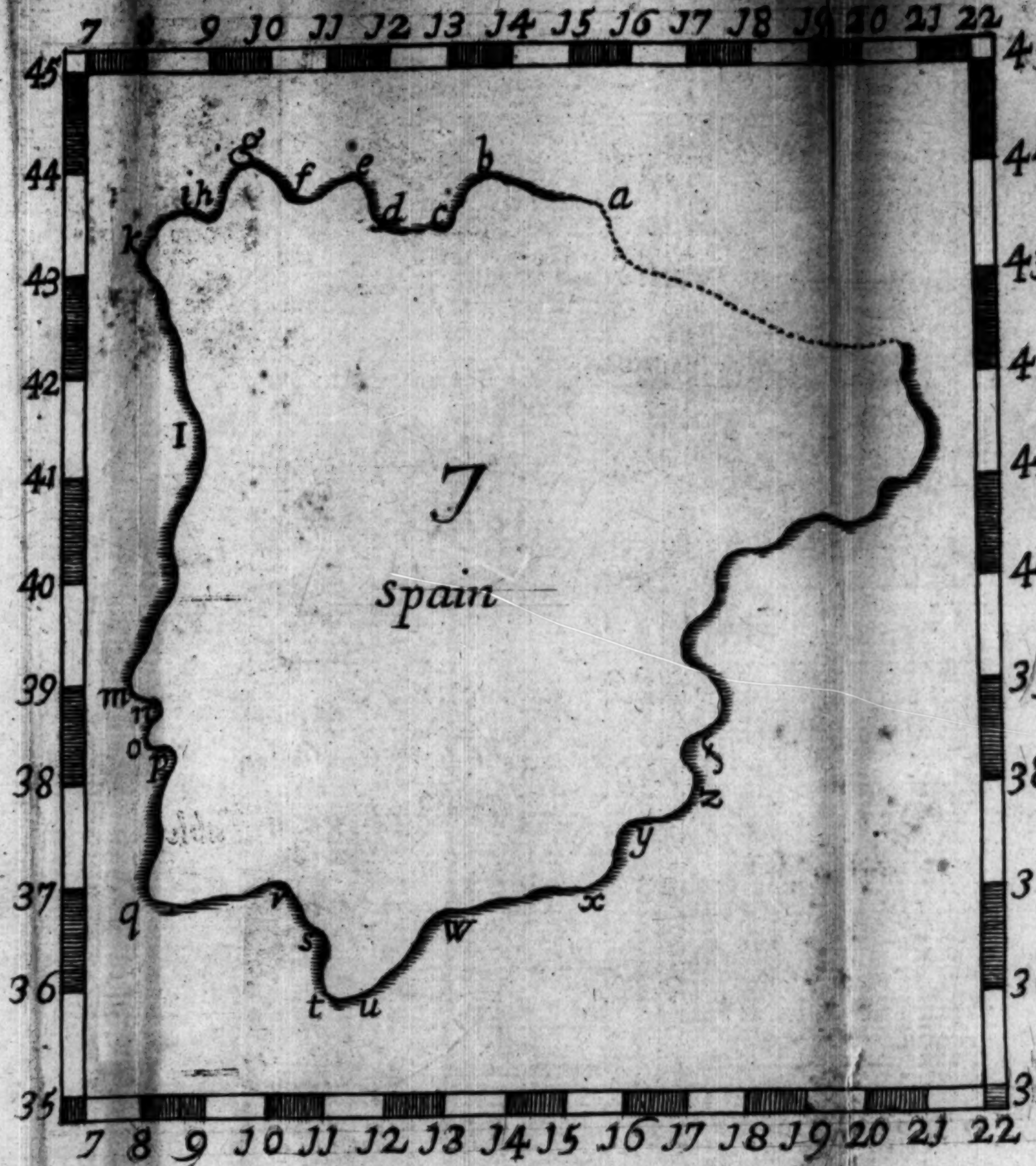


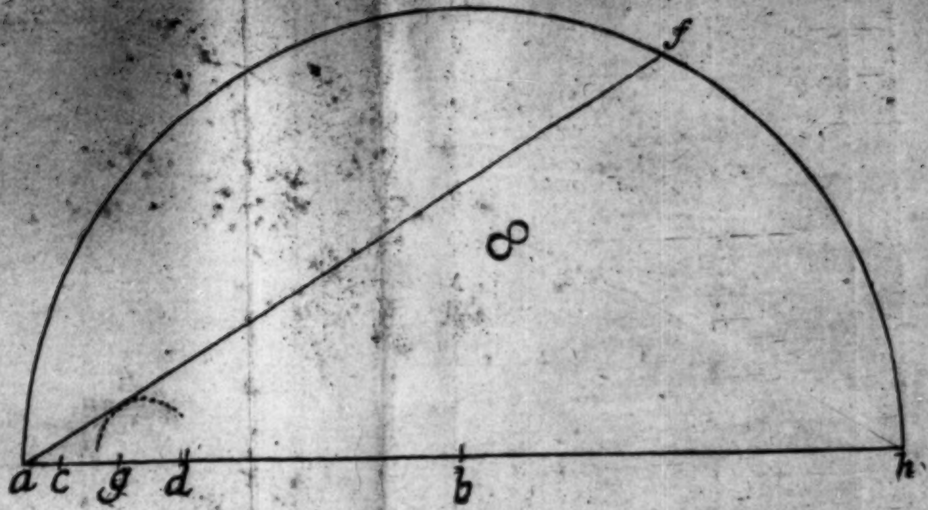


Right Position.









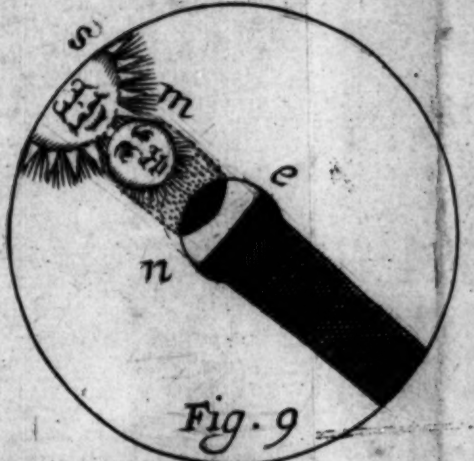


Fig. 9

Sun Eclipsed

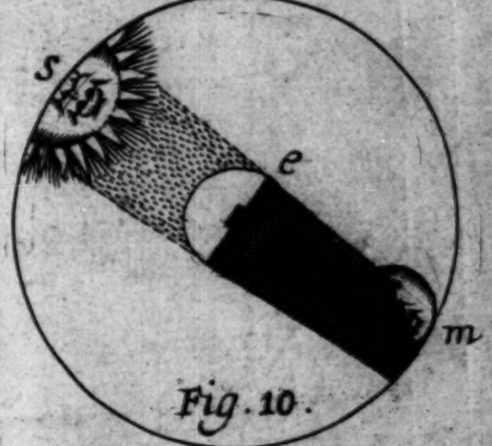


Fig. 10.

Moon Eclipsed

F. H. van. Hove. Sculp.

A Table of Angles which every Rhomb (or Point of the Compaſs) maketh with the Meridian.

North.	South.	Point	D.	M.	North.	South.
		¼	02	49		
		½	05	37		
		¾	08	26		
N. by E.	S. by Eaſt.	1 0	11	15	N. by W.	S. by Weſt.
		1 ¼	14	04		
		1 ½	16	52		
		1 ¼	19	41		
N. N. E.	South S.E.	2 0	22	30	N. N. W.	S. S. W.
		2 ¼	25	19		
		2 ½	28	07		
		2 ¾	30	56		
N. E. by N.	S. E. by E.	3 0	33	45	N.W. by W.	S.W. by W.
		3 ¼	36	34		
		3 ½	39	22		
		3 ¾	42	11		
North Eaſt.	South Eaſt.	4 0	45	00	N. Weſt.	S.Weſt.
		4 ¼	47	49		
		4 ½	50	37		
		4 ¾	53	26		
N. E. by E.	S. E. by E.	5 0	56	15	N.W. by W.	S.W. by W.
		5 ¼	59	04		
		5 ½	61	53		
		5 ¾	64	41		
E. N. E.	Eaſt S. E.	6 0	67	30	N. Weſt.	W. S. W.
		6 ¼	70	19		
		6 ½	73	08		
		6 ¾	75	56		
Eaſt by N.	Eaſt by S.	7 0	78	45	W. by W.	Weſt by S.
		7 ¼	81	34		
		7 ½	84	23		
		7 ¾	87	11		
Eaſt.	Eaſt.	8 0	90	00	Weſt.	Weſt.

FINIS.

ADVERTISEMENT.

AT the Houſe, Late the Lord *Weymouth's*, in *Channel-Row*, *Weſtminſter*, are Taught the *Mathematicks* in all its Parts; alſo Youth Boarded, Land Survey'd, Timber Meaſur'd, and Dials Delineated, by the Author.

BOOKS Printed and Sold by Benjamin Barker, *at the* White-Hart *in* Weſtminſter-Hall, 1703.

THE Comedies, Tragedies, and Opera's, Written by *John Dryden*, Eſquire; now firſt Collected together, and Corrected from the Original. In two Volumes. *Folio.*

The Hiſtory of *Philoſophy*, containing the Lives, Opinions, Actions, and Diſcourſes of the Philoſophers of every Sect. Illuſtrated with the Effigies of divers of them. By *Thomas Stanley*, Eſquire. The Third Edition. To which is added, the Life of the Author, never before Printed. *Folio.*

A Paraphraſe and Annotations upon all the Books of the *New Teſtament*; Briefly Explaining all the difficult Places thereof. The Seventh Edition, Corrected and Enlarged. *Folio.* By *H. Hammond*, D. D.

The Orphan's Legacy; or, a Teſtamentary Abridgment. In Three Parts. I. Of Laſt Wills and Teſtaments. II. Of Executors and Adminiſtrators. III. Of Legacies and Deſes. Wherein the moſt Material Points of Law relating to the Subject are Succinctly Treated, as well according to the Common and Temporal, as Eccleſiaſtical and

2 AU 65

Civil, Laws of this Realm. Illuſtrated with a great variety of Select Caſes in the Law, of both Profeſſions, as well delightful in Theory, as uſeful in the Practice of all ſuch as Study the one, or are either Active or Paſſive in the other. The Fourth Edition, much Augmented and Enlarged. By *John Godolphin.* L. L. D. *Quarto.*

An Epitomy of *Geometry*, containing the Principal Theorems of *Euclid's* Firſt, Third, Fifth, Sixth, Eleventh and Twelfth Books, with their Uſes and Applications, digeſted in a Method fit to be read by all ſuch who would, in a ſhort time, lay a Foundation for the moſt required Parts of the *Mathematicks.* Alſo *Euclid's* Second Book, and *Doctrine* of *Proportion*, Algebraically Demonſtrated. To which is Annexed, a Treatiſe of Meaſuring *Superficies* and *Solids*, *Vulgarly*, *Decimally* and *Practically*; with the *Cuſtoms* now uſed by *Artificers* in Meaſuring their ſeveral Works Likewiſe Directions for Meaſuring *Board* and *Timber*; Making *Veſſels* of any Bigneſs; Taking the Plan of any *Court*, *Yard*, *Garden*, &c. Alſo, the Cutting and Meaſuring the Five *Platonick Bodies.* Of great Uſe to all that would Found their Mechanick Practices on the unerring Principles of *Geometry.* More particularly for all Engineers, Gunners, Mariners, Gaugers, Surveyors, Meaſurers, Artificers, *&c.* By *William Alingham*, Teacher of the *Mathematicks.*

Three Diſcourſes of Sir *Walter Raleigh.* I. Of a War with *Spain*, and our Protecting the *Netherlands.* Written by the Command of King *James* I. in the Firſt Year of his Reign, 1602. II. Of the Original and Fundamental Cauſe of Natural, Arbitrary, and Civil War. III. Of Eccleſiaſtical Power.

De Jura Maritimo & Navali; or, a Treatiſe of Affairs Maritime, and of Commerce. In Three Books. The Fifth Edition. By *Charles Molloy*, late Barriſter at Law. *Octavo.*

Ars Transferendi Dominum; or, a Sure Law-Guide to the Conveyancer, conſiſting of many Obſervations, and various Queſtions, with their Reſolutions, relating to Feoffments, Grants, Fines, Common Recoveries, Exchanges, Releaſes, Confirmations, Attornments, Surrenders, Bargain, and Sales, and Deviſes. Collected out of the Year-Books of Law and Reports. By *John Brydall*, of *Lincoln's-Inn*, *Junior*, Bariſter. In Two Parts. *Octavo.*

The *Chriſtian*'s Patern; or a Treatiſe of the Imitation of Chriſt. In Four Books. Written Originally in *Latin*. By *Thomas a Kempis*. Now Rendred into *Engliſh*. To which is added, Meditations and Prayers for Sick Perſons. By *George Stanhope*, D.D. Chaplain in Ordinary to His Majeſty. 8*vo.*

Several Treatiſes of Parliaments. *Viz.* I. The Manner and Method of Parliaments. By *H. S.* E. C. P. II. of Elections, Proceedings, Priviledges, of Parliaments. By *R. C.* III. The Opinions of ſeveral Learned Antiquaries. IV. The Method of Paſſing Bills. By *Hen. Elſinge.*

Profluvia Ventris; or, the Nature and Cauſes of Looſneſſes plainly diſcovered; their Symptoms and Sorts evidently ſetled; the Maxims for Curing 'em fully demonſtrated: And all Illuſtrated with the moſt remarkable Methods and Medicines of all Ages, and with ſome Practical Obſervations concerning every Sort. By *W. Cockburn*, M. D. Late Phyſician of His Majeſty's Fleet. F. R. S. and of the Colledge of Phyſicians, *London*. *Octavo.*

A Brief and Plain Expoſition of the Church-Catechiſm, Compoſed for the Uſe of Schools. By *Thomas Jekyl.* D. D. Late Preacher at the New Church in *Weſtminſter*. *Octavo.*

Ovid's Epiſtles, Tranſlated by ſeveral Hands. The Sixth Edition. Adorned with Cutts. *Octavo.*

Seneca's Morals. By Sir *R. L'Eſtrange.*

Dryden's Juvenal.